Basic Analog Grammar

By John Clark

John 312

00 Introduction

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Friday, November 6, 2020

This work is a comprised of a number of topics I have been attempting to organize during my playing around with Basic Analog Grammar.

Analogic.

Introduction.

10/15/2018

Grammar has two divisions, each commensurate with an element of a thing. Those two main divisions are Logic and Analogic. Geometry is an analog grammar. Again, dividing by the only two concepts we have—the absolute and the relative which combined produces a unit, or thing, one can divide my work commensurably, The Delian Quest and Basic Analog Mathematics.

The main source for the foundation of analog grammar using geometry is traced back to the compendium produced by Euclid called the Elements.

Before I introduced myself to the works of Plato, I decided to study geometry but not by resorting to books, but by resorting to a straightedge and compass. Within a couple of days I was writing equations to figures, the process just came natural to me and I meditated on the concept as I continued my studies. In order to aid me in my studies I decided to search for the solution of what was claimed to be impossible to solve, the Delian Problem. I figured that since it was unsolvable, it could be used to motivate me on this wise: If the problem were given by so called gods, whatever that meant, it had a solution which could be found. If it was just conjured up by the imagination by some mystic then it may not have a solution at all as claimed by real mathematicians and I would never run out of things to try chasing a ghost. For me, then, that was a win-win situation.

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Introduction.

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Psychology is commensurate with the principles of language which are functionally resident in a mind. Other philosophers have put this into words which indicated that human virtue is produced by a mind doing its own work.

I am going to present a standard for language comprehension following this introduction based upon definition, but for now, let us take a look at what people take for granted, or again, take as a given.

Have you ever heard that there are two, and only two, primitive methods of constructing a set? One can enumerate the members, or one can use a definition which determines class membership.

There is an immutable order to learning. It is the same order which determines the evolution of a thing. It takes experience with many examples before we can group those examples under one concept, in other words, before we can construct a definition. Before one can see the simile in multis, or again, the similar idea in the many examples, or again a definition, one must have experience with the many examples.

In terms of evolution, a species understands and effects language by enumeration for a very long and bloody history before it evolves to use language in accordance with definition. It can use names, but it cannot formulate a standard of behavior in reference towards them. It believes that it is linguistic, when it is factually proto-linguistic. A proto-linguistic species is not capable of judgment. It cannot, by definition, erect and maintain a standard, a definition, for any thing.

What I am doing in this work, is demonstrate how to erect language by definition. It is a time in history that one will find intimated in ancient texts which indicated what some would call guided evolution. The fact is, evolution must go in that direction anyway. It can be made shorter or

longer, and even snuffed out, but if evolution continues, there is only one result, a humanity with a functional mind doing its biologically defined job.

Prerequisites of this work is a long and careful study of the Platonic dialogs. Comprehension of at least the first few books of Euclid's Elements to the point that one can write equations to the figures without Trigonometry, Calculus, and Cartesian Coordinate systems; in other words, in simple Algebra. An example of this process can be found in my work called The Delian Quest. Towards the end of that work one finds the seeds to BAM, Basic Analog Mathematics. I discovered that branch of Geometry by writing equations to figures for so long, that I finally figure out to write a standard figure to given algebraic equations.

Basic Analog Mathematics reinforces the understanding of exactly what we do in language.

Grammar Mechanics

A mind is responsible for standards of life supporting behavior and is thus responsible for predicting all behavior. It accomplishes this through the abstracts of Language being the parts of any thing; its limits and its relative difference.

Grammars are indexing and mapping systems for memory. They are not the information mapped at best they are metaphors.

Language is Universal and Intelligible; therefore nobody can speak language. Grammar is Particular and Perceptible; the single language of creation, of the Universe, is recursively used to produce Grammars. Every form of communication involves grammar.

The two intelligible elements of Language can be named, and actually have several, however, the intelligible required to recognize and employ those concepts can only be provided by one's own evolutionary development. The ability to be aware of the intelligible elements of language cannot be bestowed upon anyone in any manner. We can and we can learn to recognize and use them solely as a function of our own intelligence. Many people have remarkable memories yet cannot recognize the significant abstractions of the recalled information.

Unlike so called modern scholars, ancient Greek philosophers, as exampled by Plato, Euclid, and the author of the Judeo-Christian Scripture, started the study and the teaching of grammar by what we can objectively name, the elements of any thing. These elements of a thing form what is called a unit, a logic gate, a thing. We can name the relative of a thing and we can name the correlative of a thing providing us with exactly two, and only two, parts of speech. It also means that every possible grammar, logical and analogical, is effected by complete induction and deduction of a unit. The convention by which we assign names to these two elementary abstractions determine the whole of

grammar through their recursion. One can say we actually count with order naming conventions, such as arithmetic and unordered naming conventions such as common grammar, or in short, we afford memory mapping, memory addressing, actually four distinct ways, three logically and one analogically.

Modern scholars, it appears, have never had the wit to actually start at the foundation of grammar itself, the first principle parts of any thing, to test the gibberish they were spouting about grammar. Every grammar is effected by the standardization of our behavior in regard to symbol sets and the recursion of symbols to construct memory addressing.

Most people will admit that there is such a thing the ability to see into the future, however, one would be hard pressed to find agreement as to how it is accomplished. Do we sit on our thumbs waiting for some mystic voice or vision, or is it a biologically afforded fact through grammar? The answer is obvious only if one actually understands the definition of a mind; only if one understands the Law of Identity when expressed as, what may be predicated of any thing, even man, is wholly determined by the definition of that thing.

A particular savior of mankind is, by definition, impossible, however the Messiah, a defined biological fact, is not only possible, it is constantly proven even if no one hears the proof. Every life support system of a living organism is a messenger of the environment, is the salvation of that form of life.

Symbolic Information Processing

From the moment of birth we start learning how to manage our own behavior relative to our environment. This ability is afforded to us by memory and memory management.

Memory is the storage of experience; it can be called the virtualization of our environment within a mind. With that memory our biologically defined job is to help maintain and promote the life of the body.

In short we acquire useful experience which we can manipulate as memory in order to maintain and promote our life.

We manage memory through indexing systems called grammars which most people colloquially call language. Technically, language is not the same as grammar. Language is a biologically provided advantage while grammar is how we make use of that advantage.

It should be obvious that we require optimized experience by which to load memory prior to any ability to manipulate it. This is currently not socially provided. Geometry actually provides an optimized universal source of experience. However it is so highly abstract that simple minds cannot recognize nor formulate the associations. Learning grammar has to become an optimized universal source of experience. In the simple, learning grammar is said to be an optimized universal source of experience which produces an optimized social form of consensual expression by which a social structure interacts to perform its biologically defined job, or again, manages its behavior towards the environment in order to maintain and promote life.

Grammar provides the art by which we craft our behavior. Grammar is the standardization of behavior by which memory is managed to produce our physical behavior. One can even say that grammar is a biologically defined ritual response to the environment.

We not only use grammar to manage our own particular behavior, but it affords us the ability to act in concert with a social environment to increase our ability to perform our individual biologically defined obligations.

Every grammar is composed of two parts; a set of symbols, or symbol set and a defined method of combining those symbols to produce specific indexes, or names. This affords us virtual addressing, recollection and manipulation of memory.

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The main source for the foundation of analog grammar using geometry is traced back to the compendium produced by Euclid called the *Elements*.

Before I introduced myself to the works of Plato, I decided to study geometry but not by resorting to books, but by resorting to a straightedge and compass. Within a couple of days I was writing equations to figures, the process just came natural to me and I meditated on the concept as I continued my studies. In order to aid me in my studies I decided to search for the solution of what was claimed to be impossible to solve, the Delian Problem. I figured that since it was unsolvable, it could be used to motivate me on this wise: If the problem were given by so called gods, whatever that meant, it had a solution which could be found. If it was just conjured up by the imagination by some mystic then it may not have a solution at all as claimed by real mathematicians and I would never run out of things to try by chasing a ghost. For me, then, that was a win-win situation. Or one can say, that despite assertion or denial, I was going to investigate the problem on my own as a means of learning.

I ended up solving it, however, not being a member of the intelligentsia, it has been repeatedly refused to be published. Another reason, perhaps, is it demonstrates the stupidity of the intelligentsia.

If one is familiar with the bell curve in regard to intelligence, I have had my own introduction to it when early in my schooling the teachers placed me at an extreme on one side of it, but there own tests put me on the opposite side of it, which confused the hell out of them. One of the implications of this is that it is common in history—the dumbest persons are often hailed as the greatest geniuses.

When I was young, it was clear to me that mankind was not processing information correctly at all, in fact they assumed that they knew what they nowhere demonstrated that they knew. For one thing, there is factually no correct grammar book on the planet. Men are pasting words into strings, but have absolutely no standard by which to connect words together. They had an obviously ridiculous system of rules called grammar, but which in fact is not grammar at all. I have personally never passed one of their grammar classes. They are wholly absurd. When men display is a complete lack in comprehension that their own biology and physical fact determine the whole of grammar they have no objective correlation. Man assumes that by sticking words together that they can change the principles of language. What men call genius for this gibberish is wholly astounding. No man is a genius who displays no standard for the grammar that they use. The standard is not more words or symbols, but a correlation to what those symbols denote which is physically defined and biologically known—a unit or one standard concept of a thing. No where, other than the JCS and Plato, do I find any awareness of this very easily demonstrable fact. Both of these works, including Euclid's *Elements*, man turns into pure gibberish and he is wholly unaware of it.

It is very clear that the average person does not reduce the symbols they use to basic intelligibles, the symbols they use are reacted to on a perceptible level which means very limited intelligent information processing. It is closer to parroting than thought. For example, every so

called non-Euclidean geometer justifies their bizarre behavior in terms of perceptibles, they display no awareness of intelligent information processing—the same as those who teach common grammar. As a child, I was simply confused by such bizarre presentations.

A mind is an information processor. Grammars are simply indexing systems for information gathered by our senses, perceptible and intelligible. Our body informs us of boundaries and the relative difference between them, that is, absolutes and relatives, which combined is simply a unit, or 1. I cannot deviate from that fact, nor can grammar. This means, as Plato stated, we work only with nouns and verbs just like in geometry, absolutes and relatives.

Our biology affords us only two basic concepts, absolutes and relatives. By recursion of these two concepts we formulate the whole of any particular grammar. If one studies the great brains in history, they will find that they do not understand that complete induction and deduction is simply another expression for recursion, nor do they demonstrate exactly what they are suppose to be repeating to begin with. As expressed by the JCS in metaphor, by Plato, and Euclid, it is simply these two elements of a thing that we can name. Every other concept is a combination, an equation if you will, of these two simple concepts. This means that you can call a sentence an equation and an equation a sentence, however, that is not what one is taught. One is not taught, in any grammar today, that we are always manipulating the same concept of a thing, where each individual thing simply has a different combination of relatives. We are counting in common grammar with relative naming conventions but in arithmetic, absolute naming conventions. The convention of naming, or symbolic convention, does not change the information. No grammar ever changes information and information is not the grammar. Or in more modern terms, the map is

not the territory. Linguist repeat that, but they display no comprehension of it.

If one is a member of the intelligentsia, we even have things called real numbers, whole numbers, imaginary numbers, counting numbers, transfinite numbers, etc., which amounts to saying that we have real names, imaginary names, counting names, whole names, transfinite names, etc. A number is no more than a name generated by an order convention of names. Number does not take an adjective. I know this, as I have spent thirty years looking for one transfinite tomato. Even I am bright enough to know I will never find one that counts and I like them too much to invest in an imaginary one. It is wholly absurd the amount of mental masturbation found in school books. You can critique so called educators all you want, it will not increase their I.Q. by one point. Or, one can say, that I know this because by complete induction and deduction, one can never fly off into the bananosphere into another symbol set while using it. Write all the numbers you like. You will never be able to make the distinction in them as claimed by the brainiacs.

Whenever someone comes up with some newfangled theory, it is often no different than a witchdoctor's account, or a religious fanatic's account of reality. Yet men continue to be in awe of the witchdoctors. If you cannot say it simply, you simply cannot say it. After all, exactly how difficult is it to comprehend a unit? Apparently beyond the ability of man.

Any account, in common grammar or mathematics, must always display the recursion of a unit. You can no more pull an equation out of your tush than you can a statement in common grammar. Yet, men keep doing it and not showing their work step by step in regard to this single demonstrable standard for information processing. They say what they please, not regulated by language processing at all. And no one aware that this is insanity, a schizophrenic break with reality. This state of

affairs however is in the metaphors of the Judeo-Christian Scripture. Before a mind has evolved to a particular point in that evolution, it is really not aware that it is dysfunctional. Is unaware that what it calls knowledge is no such thing.

No one cannot actually learn grammar unless the principles of language, itself, are functionally resident in that mind. This simply means that the ability for symbolic processing is proportional on an individual basis. It does not mean that there is no standard by which to measure and express it.

One might think that because of the shear bulk of my work that that material is the relevant part of my work, where the relevant part of my work is that single concept. Generally the bulk of information is inversely proportional to its intelligible relevance. Many believe that the number of what they call particular languages that they can speak is something wonderful, while being wholly ignorant of the fact that it means that they are capable of rehashing the same nonsense. The same intelligible is untranslated in every version of it.

As your own biology should teach you, Language is simply two concepts presented to a mind by their own biology, the absolute and the relative. Grammar, on the other hand, are the symbolic systems to express that language. Technically then, there is only one Language and a number of grammars. One can count those grammars in two ways, relatively or absolutely. Relatively, one tries, like an idiot, to count the number of symbols one can produce, being in fact, infinite. An idiot counts the perceptible symbols and ends up with such non-sense as the English Language, French Language, etc. The so called intelligentsia take this approach which is not flattering at all, however, if someone claims you are a genius, it may be because of this particular stupidity. The other way is to count them based by the intelligible difference they are based on, again, the absolute and relative. One should start their

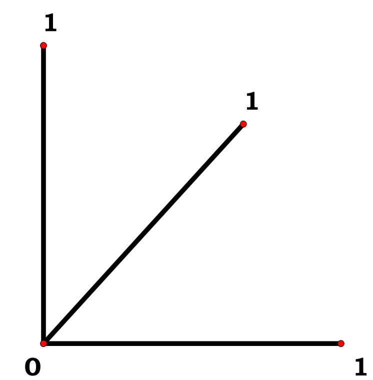
examination of grammar with the particular question, what can we actually name, why, and how. One will not find any historical work where the author reasoned after that fashion, at least as far as I know.

We can symbolically represent both the relative and absolute by relative and absolute symbolic conventions which produce four basic grammars. So, you can claim that there are an infinite number of grammars as some grand expression of intelligence, or you can demonstrate that there are factually four. I am not particularly impressed with grand gestures, I do not find much help by them. Secondly, when you are explaining grammar as complete induction and deduction of a unit, one does not immediately abandon it and simply say many like a primitive. By simple recursion of a unit we simply acquire four categories of grammar. Eventually when one is answering any question they will immediately understand that what may be predicated of any thing is wholly determined by the definition of a thing so that although the big brains love the infinity symbol, it is actually not an answer. When they learn to think, you will see those symbols being used less frequently. An answer is not the same as just any one collection of words.

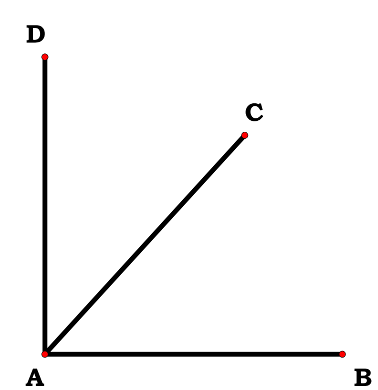
There have been, and perhaps will be, those who cannot master assertion and denial while able to acquire college degrees in math. How stupid does one have to be to not be able to say that X is not a set, or thing and insisting that it is a thing by calling it the null set? I don’t get it. It only expresses the fact that one is asserting and denying of perceptible symbols while devoid of its intelligible content. Assertion and denial functions with exactly these two concepts of any thing—nothing more, nothing less. Geometry cannot teach you that you have only two concepts, it can only teach you how to use them. Grammar cannot even insert the biological ability of discerning the basic concepts of language. No one can talk their way out of evolution.

Now, if you can imagine that you are not a member of the intelligentsia and can work expressly with intelligibles, let me introduce some graphics, but graphics which are commensurate with a two symbol grammar, or analog grammar, geometry. Let us assume that every symbol we write can be called a graphic or more simply, that we can recognize a synonym. Graphic, is a synonym for visual, a graphic some division of it. Class and member of a class. Every definitive sentence presents the name of a class and the names of some particular members, one each for each element of a thing. This means that we often use an equality as a directive for one's attention, not the abstractions we are calling attention to. Many false arguments are based on ignoring this basic linguistic fact. Grammars are developed for the manipulation of memory and therefore one of the intelligibles one has to keep in mind is that they are designed to manipulate your memory through intelligibles, expressed or implied. How often have you ever read that grammars are designed to manipulate your own memory, your own mental behavior? I have personally never seen it and I have quite a collection of digitalized grammar books. In this case our graphics are also symbol sets and specifically a two symbol grammar in analogic called geometry. Instead of viewing geometry in terms of the tools to write the grammar, straightedge and compass, understand it as the two symbols used to express it. You can put this into words several ways, the unit and universe of discourse, or the line and circle, or again a grammatical unit, etc. We cannot define a unit. A unit is actually given biologically and physically. We do describe it in geometry in terms of points, segments, lines, circles, triangles, etc., but the grammar of geometry is produced like every other grammar by the recursion of the unit. The recursion of the unit segment in geometry produces a circle. This gives us our two tools for expressing plane geometry and another recursion produces solid geometry. It is not my place to apologize for the really stupid thinking of mankind on the issue.

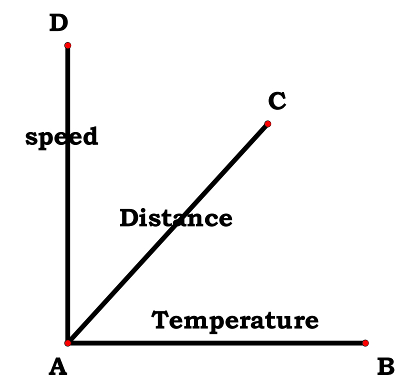
So let us imagine that we can actually construct an analog grammar with one relative and its two boundaries and naming these elements of a thing as point and segment. It is not as if the concept is new, but as one can see, something a self proclaimed brainiac cannot master.



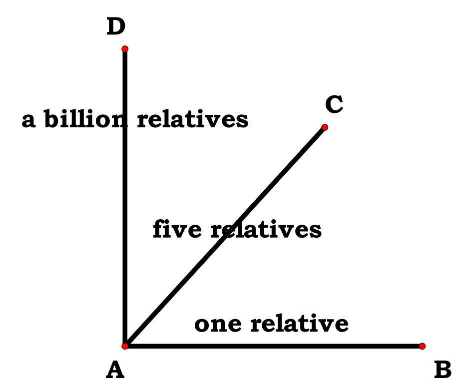
Now we can have our unit laying down, skewed or standing up and that it has absolutely nothing to do with the definition of the unit. In short, the gibberish that science and physics depend on coordinate systems of reference is just that, gibberish. Neither Physics nor mechanics are Newtonian or Quantum. The geographical location of a unit is not part of its definition, nor is the relative difference between terms predicable of either term. It is simply a unit for discourse, for complete induction and deduction. Looking for a theory of the universe is like looking for your shoes when they are already on your feet. How stupid can you be? There are countless ways of saying one is illiterate, and the intelligentsia apparently are looking for them all.



And it does not matter what logical names we give the terms of the unit. The unit does not change. We can use the absolute naming convention of arithmetic or the relative naming convention of common grammar.



Nor does it matter what we name the relative difference.



Nor do we have to claim to be reinventing a grammar called Set Theory. A relative can be a single relative or any group of relatives.

The boundaries of a unit are called corellatives, meaning they keep the relative company, and the relative is simply a relative. One will notice that we often name correlatives denoting a set of relatives. This, however, has not yet been standardized in our vast knowledge of language.

Now, for those who are mystified as scholars have been for over two thousand years about Plato's dialog *Parmenides*, it is about the principles of predication. It should be noticed that neither element of a

thing is, in of itself, a thing and cannot be predicated of. Predication actually equates the name of a class with specific members of that class. Or in terms of the above graphic, the name of the whole thing with specific names of a pair of member elements, one name for the correlative and another for the relative. One can call this database construction, unless, of course, one is a member of the intelligentsia.

Plato's *Dialogs* come down to us as a collection of dialogs which the so called intelligentsia argue over which of them are actually his, when in fact, Plato stated clearly that his work was grammar and its psychology. They are aimed at behavior as effected by the unit concept, the factual foundation of language. Like the Judeo-Christian Scripture, he demonstrates the use of mythology in the modification of behavior as well, in fact, his best constructed myths, like *Phaedo*, are outlined on the unit itself. The Judeo-Christian Scripture is more subtle and more factual than Plato.

As we start grammar with language and language is composed of only two elements, the intelligible recursion produces four distinct categories of grammar. I can use a relative naming convention for the elements of a thing which produces our common grammars. I can use an absolute convention of names which produces arithmetic. I can use a combination of those to produce Algebra, and with our original analog that makes exactly two squared or four. One can even use some particular musical instrument as an analog grammar system, but it is way too abstract for even me and it is based wholly on what is pleasing to the ear.

In my work *The Delian Quest*, I use geometry and algebra specifically for each figure, however, in *Basic Analog Mathematics*, I demonstrate arithmetic, algebra, and geometry, in a universal format which can actually be applied to common grammar as well. Therefore, my work is, itself, divided by the unit and universe of discourse. With *Basic Analog Mathematics* one can actually write a computer which is independent of

time itself. As soon as one has an input one has an output, the two are simultaneous—every event happens at the same moment. There, in the figure, is a proof of the fallacies of the Einstiens. How stupid does one have to be when asking, how can two events be called simultaneous if we add a relative difference to the definition? People getting all serious over something which should have them laughing. An absolute can never be a relative, the very first definition in the *Elements*, a point, or boundary, is not a part, or relative. If one is easily confused with synonyms, they go away scratching their behind trying to comprehend a simple sentence.

The phrase Quantum Computing has quite a lot of mystical rubbish in many explanations of it. One cannot change language, but one can change the ways in which it is expressed. The relative difference of every thing is also called that thing's behavior. We gate human behavior with metaphor and fact. We gate water with dams or a simple faucet, light with almost anything, and electricity in several ways, including the simple transistor.

Man is still evolving to become what is defined as man in the front of the JCS, a relative difference constrained by absolutes, language itself.

Geometry, as a two symbol grammar, is based on one and only one perceptible behavior and one and only one conceptual behavior. Not moving a hand to write, and making one, and only one motion to write with the hand. It is not a difficult concept, but which a mind that spends too much time away from reality cannot, apparently, comprehend. Points, are in fact often written to accent the name, but grammars do not depend on its perceptible as witnessed by the infinite fonts and handwriting styles of men. A man, capable of intelligence, does not ask if a line is still a line if one bends the paper, or writes on a tennis ball or some particular scrap of paper.

Every grammar is effected by standards of behavior, the real standard being conceptual not the perceptible behavior of some particular ink on

paper, wood, rock, or smoke in the air, or radio transmission. If you are as easily confused as what men call genius, well then, there you are. Confusion and concept do not designate the same behavior. A single concept, physically defined, biologically known, denotes the genius of man, not the gibberish of the intelligentsia.

The intelligentsia of the world today are equal to the dumbest which believe that human behavior is regulated by what pleasea certain people in certain social positions, even if that person is themselvees, just like any other stupid animal. Correct human behavior is defined by demonstrable biological fact. That is why I find this world very bizarre and very frightening, not to mentions very depressing. Man is nowhere yet to be found.

Basic Arithmetic in Geometry

Friday, November 6, 2020

Arithmetic is a logical system of grammar while Geometry is an analogical system of grammar. I generally use the name Basic Analog Grammar, however most people would not know what that means; suffice it to say, the mind is a life support system of our body and as such has a well defined and biologically determined job to perform and well defined biologically determined means of doing that job, language as a binary expressed in every possible grammar system when a mind has become functional. Until that time, just like any computer, that mind produces gibberish.

Currently there are no correct grammar books on the planet and everyone believes that the mind processes information in countless ways. All they have to do is ask their computer; *Is all information processed in binary*? Plato answered that question and called the effect as applied to all thought, dialectic, thinking, reasoning, speaking, by two's; the elements of every thing.

Everything is composed of some material difference within limits; this means that everything is expressible, as the early Greeks were doing, as a binary expression which is the same concept used for the terms assertion and denial, *is* and *is not*. Technically *is not* is a noun, an absolute, while *is*, a verb. Plato called grammar systems dialectical because of that binary association; we are always speaking in accordance with these two primitive concepts afforded to us by Language and expressed in grammar to the limit of our intelligence. These two elements of any thing afford us two categories of grammar, logical and analogical. Arithmetic is a logical grammar, common grammar is a logical grammar and algebra is a logical grammar. Geometry, on the other hand, is an

analogical grammar; it is a pure analogical grammar. Together, these four comprise a grammar matrix or in biblical metaphor simply matrix.

Every system of grammar is a method of utilizing the binary of Language to do our biologically defined job but the comprehension of grammar systems is contingent upon our fundamental intelligence. Grammar systems are produced by the recursion of the binary of language by its application to symbol sets for the absolute and relative. Simple minded people imagine binary using symbols of only one binary grammar, 0 and 1, which is wholly devoid of the actual intelligible of elements of a thing being explored by some early Greeks and which is introduced in the Judeo-Christian Scripture in several metaphors; the most comprehensive being the Conjugate Binary Pair called Adam and Eve. Second from this, I would put something just as missed in metaphor, the Two Tablets of Law, written on both sides producing four pages, or again, the four basic grammars which are derived from our original intelligible binary.

The mind is a life support system of a life form and like other life support system it processes what it has acquired from our environment in order to make products that maintain and promote our life. And like every other life support system, to the limits of its evolutionary development. The area of the environment the mind evolves to deal with is an intelligible portion of the environment, time, past, present and future; often simply called memory. Grammars are simply memory management systems, while to the mythologers in science and religion, they are a means of creating their imaginary realities. There is no distinction between the Einstein's of history and high priests of some cult. As the most powerful life support system possible, it takes longer to evolve in a species; man is still evolving and this evolutionary process is indicated by man's own disunity. The mind of man, in general, is still very dysfunctional. As psychology is commensurate with the principles of

language which are functionally resident in the mind, one can plainly view human insanity through all of human media, social and secret.

The development of the human mind is also commensurate with the two elements of a thing, the absolute and the relative. Psychology is commensurate with the principles of Language which are functionally resident in the mind as grammar systems. This work is currently in edit mode; All of my work is aimed at psychology through language, as a biological fact of a sapient species, and grammar systems commensurate with the evolution of a species to become sapient.

Chapter 1.

The Unit.

3/8/2018

When I first started drawing, I started with the desire just to try and learn a little geometry. In terms of the word geometry, I was a clean slate, I never had it in school and I was in my late 30's when decided to set off on my little learning adventure.

It took about a dozen years, maybe because I was not actually thinking about it, to realize that a circle was not just a circle nor a line just a line. It took a lot longer to realize that the mind processes all information based on only one concept of a unit:—a unit is just a synonym for a thing.

Now, the phrase, for it certainly is a phrase, does not seem to mean much until you start looking into your own mind. Slowly, you start to realize that it means everything. Everything we think and do, when our mind is functioning, is the results of complete induction and deduction of a unit, or as Plato would say, *Just one thing*.

Another thing this means is just this. If this fact is not known or understood, then one does not actually know any thing at all. It means that we are proto-linguistic. As such, it also means we are a beast, docile or not. Language separates man from animals. That distinct separation is impossible until our mind is functioning by complete induction and deduction of a unit, a standard concept of a thing. The evolutionary umbilical cord only becomes severed when our behavior is determined by a mind doing its own work.

A lot of people do not exactly know what it means *to do one's own work*. I had some idea, that is why while I was at work, doing my job, I sometimes got into trouble with both the company and the union. I was

an over-achiever and for a very good reason. After I had done more than production quota's I would take a break and try to study. Now the company wanted more, never satisfied, and the union threatened to actually kick my ass if I did not slow down. For some strange reason, which I have not figured out to this day, both of them suffered the same sociopathic behavior, each of them thought that I was governed by them. How is it possible, in a country that tosses the word *freedom* around to be wholly subjected to a slave psychology, a slave mentality? I have absolutely no idea. Although I did eventually earn my pension by my own terms, and I did earn some respect by both the company and the union, neither were happy about it. A social working life is something like standing in the rain with occasional hail:—neither the rain, nor the hail will ever remember you. So the company, setting production quota's were claiming, by their behavior that I owed them more than they said was a fair day's work, and the union claiming that job security means not doing one's own work. One telling you it is okay to beat the horse to death, and the other claiming you never have to leave the barn. Wonderful, just freaking wonderful, because both of them are claiming that I am the problem. Seems to be my life's story.

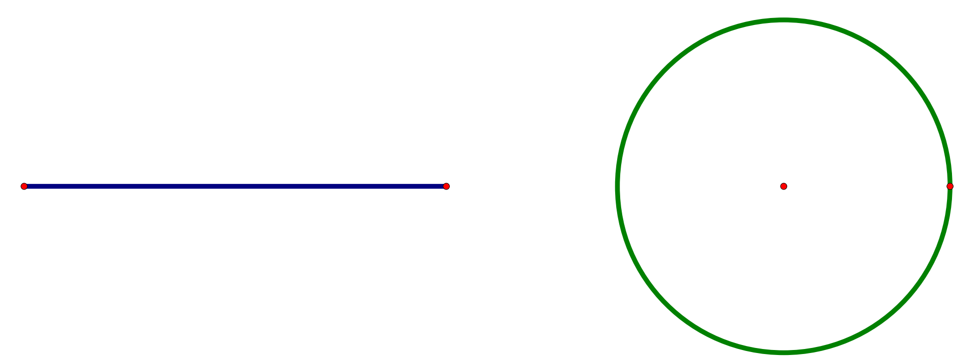
I have a problem with authority. Even when I was going through a phase of being able to see things which actually came about, I found it curious, examined it, but my attitude was, however it was happening, I did not cause it, so why would I be interested? If I do not know a thing, then I either had to learn it, understand it if I could, or move on to something I could understand. Simple as that. I likened the experience to people who bitch about rich people claiming if they had that person's money that they would do thing's differently. Really? ever think about starting at the start, by earning the right to say that, by earning the money? I actually felt sorry for people who chased after the visions, all of their life wondering why they could not master it, when it was clear,

should have been clear, it was not by their own ability. The future does not exist, thinking that it does is a brain dead tense error. I did not know where the visions were coming from, it did not excite me, and I was certain that I did not know, the only question to ask, just like popular media, why in the hell do they, or what ever it was, want my time? My time is the only thing I have. It is a blind bank account of which you never know when you have over drawn that account. You never will.

Except I did, and that event sent me into a state I have never really recovered from. And I still do not know why. What in the hell does anyone want with my time, only now, is it my time? My account ran out a long time ago, yet here I am. Why? My whole situation is involved with true power I cannot understand and is wholly out of my ability to understand.

So, I have to take the only road, the long road to understanding. I have to start learning the unit.

In the grammar of geometry, we have two distinct tools. The straightedge and the compass and they produce a results, with pencil, pen, crayon, chalk, scribe, etc., like these:—



And by recursive use you draw; draw is just a synonym for symbolic expressions in that grammar. Eventually you learn that the segment is just one thing, a unit, and the compass an expression of the universe of discourse. That tool, the compass, is all you have to do the math, or speak the language. Although they are constructed, each with a tool, the

results, by appearance, differs drastically between them. The circle is not a line. It is a conceptual abstraction imposed upon the only word possible, one. By complete induction and deduction, all you are doing is counting and it does not matter if you are counting days, or the color of someone’s eyes.

Chapter 2.

The Ball Game.

3/8/2018

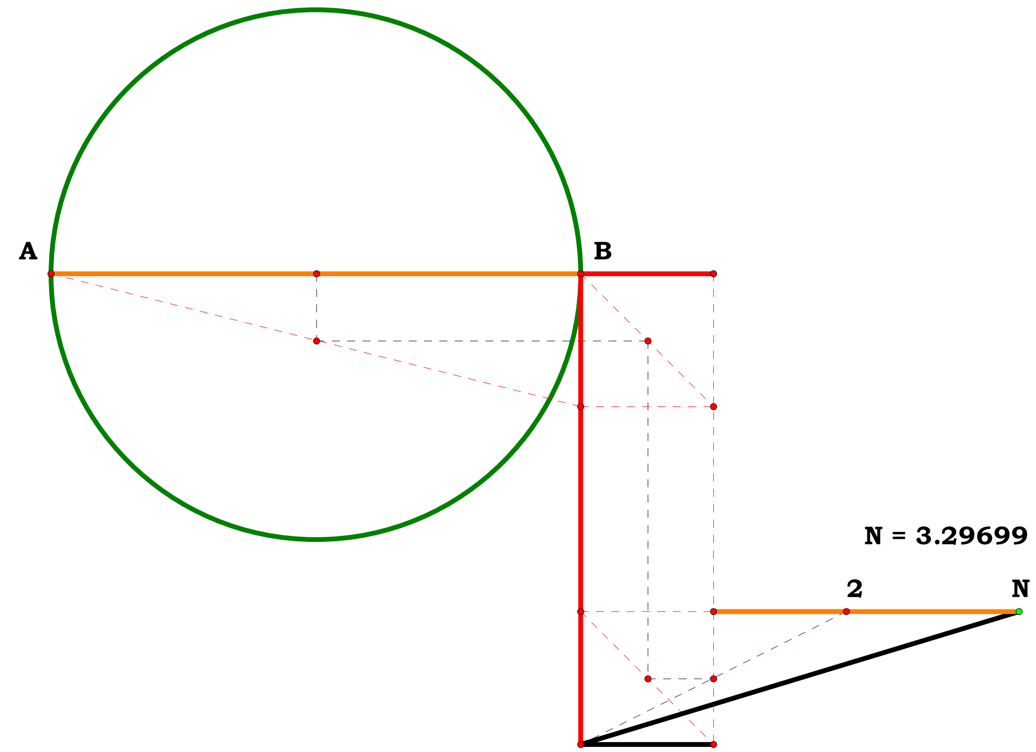
In baseball, it only takes three misses at bat to set you back down in the dugout. It is a life of second and third chances, which makes it an optimistic game, unlike evolution.

Before my trek into geometry and later, the study of Plato, I ran into another problem. I had an answer, in visual metaphor again, to a question I asked. For three days, I tried to figure out what C.M. meant. The best I could do is Common Market, which is actually what it does mean. Being in the format of C.M. means that it is a class with many members, that is what initials are. Another word for initials is acronym. The sign I was given in the lucid dream, is simply loaded with meaning, so that no matter how you look at it, if you are thinking, the results is always the same. When I have given up on trying to second guess the initials, I resorted to using a dictionary I found in the shop drawer. On the top of that list was, Congregation of the Mission. I knew less about this than the Common Market, however, I had a greater aversion to it than the other. I am not in the least fond of religion, not as practiced today, not as taught today. Therefore, I naturally had an aversion to the Bible in terms of religion.

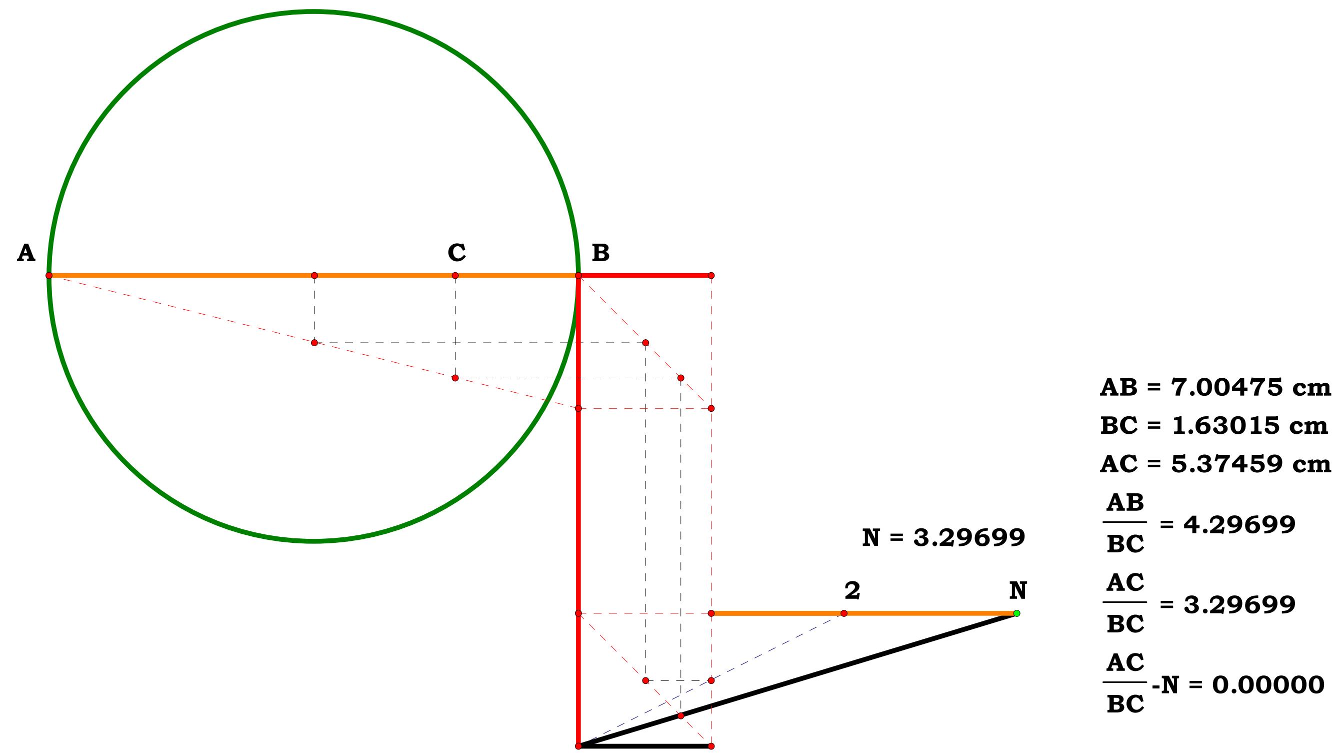
So, after I had my fit and by seeing that the words of the Book were being used a lot differently than I was use to seeing in a book, things started getting weirder than they already were in my life.

When all was said and done, a very long circumlocution, much worse than an Platonic Dialog, it brings one back to the unit by which psychology is determined, even the name of the beast 666, resolves to a biological fact, what determines what we are is simply by our psychology as determined by our ability to employ the unit in thought. Therefore, let

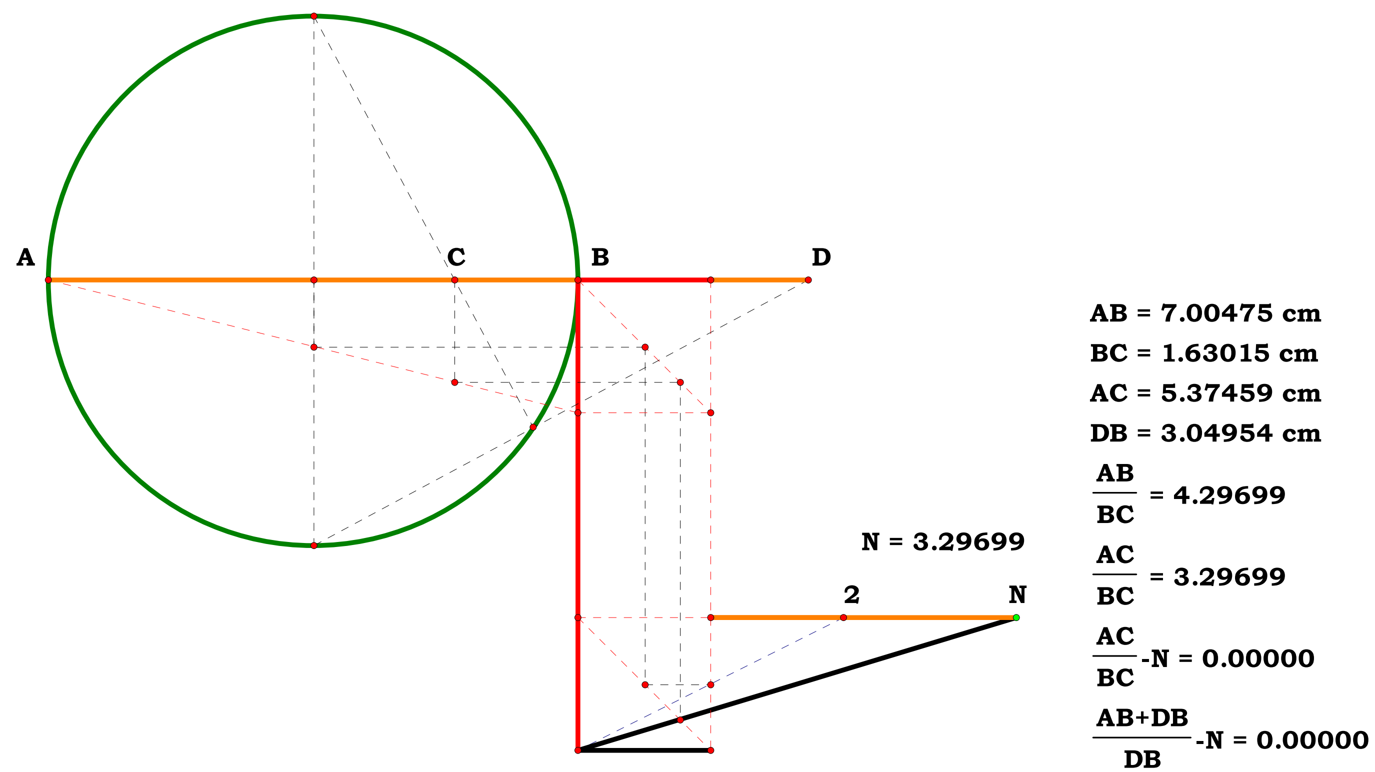
us pre-suppose that you have done your homework, and that you have studied the *Delian Quest* and *Basic Analog Mathematics* and let us put together a figure for doing complete induction and deduction with a unit using just a straightedge and compass. It should look something like the following:—



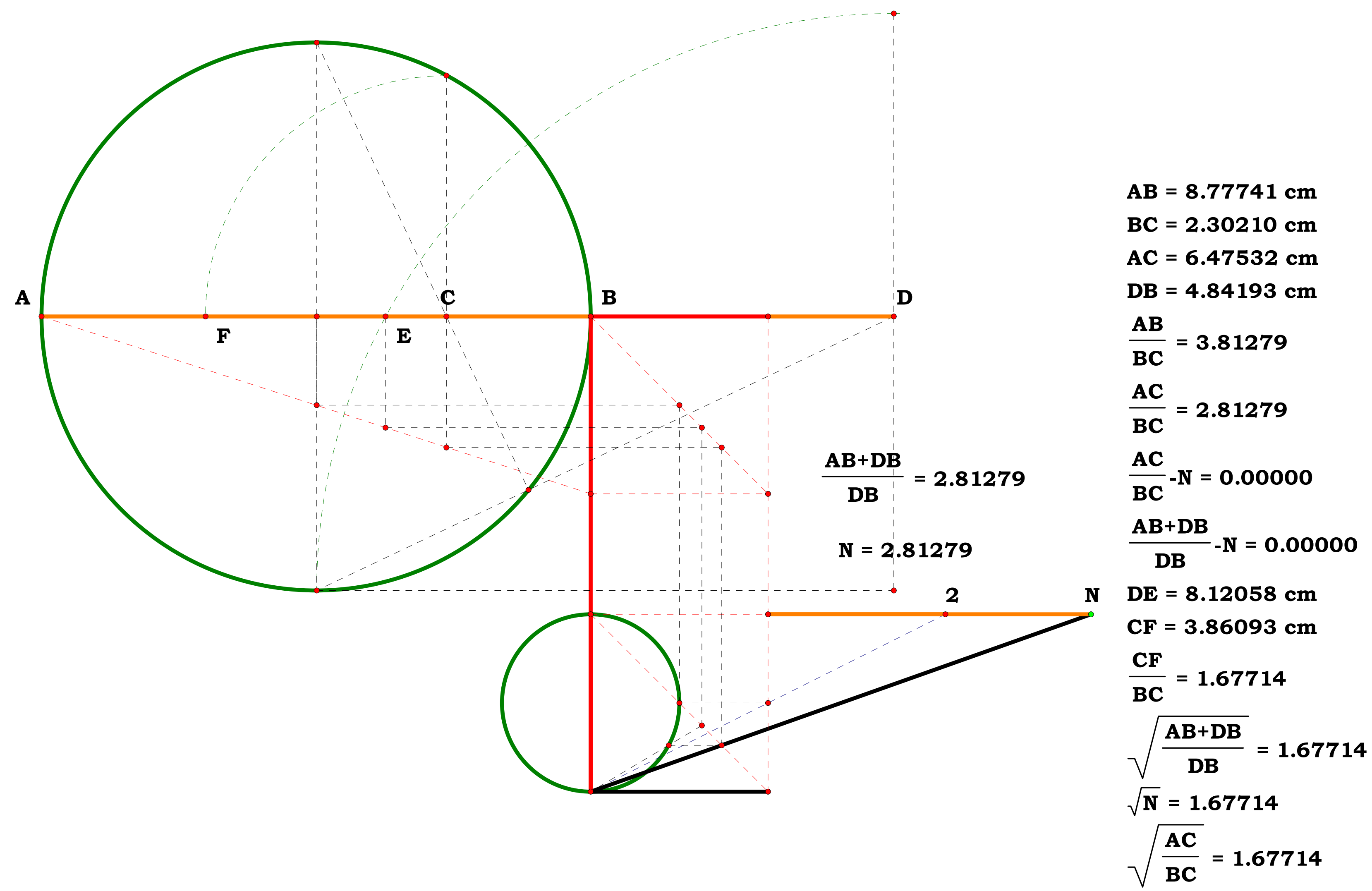
AB can be any size you please: It does not matter in the least. N, however, is going to be constructed by which one assigns an ordered naming convention to what ever names we are going to assign to AB. This way, we can learn to see how the very same unit of discourse is expressed no matter how we recursively apply it, by induction or deduction. You may, like everything else, just look at the figure and draw a blank. Let us first examine how N is expressed inductively and deductively.



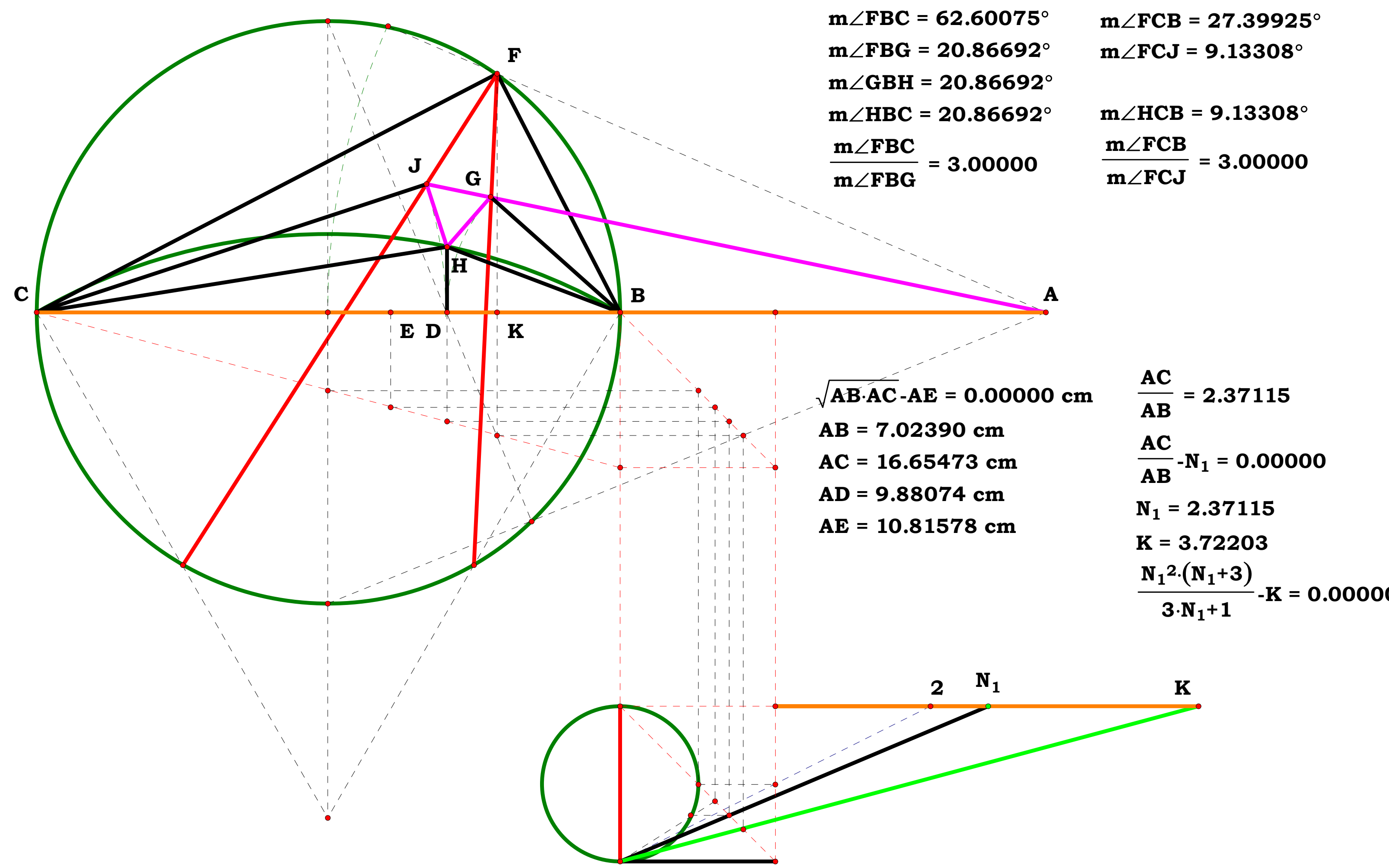
Examining the measurements of AB, BC, AC, with any means we desire, we noting a relationship to N. We have duplicated N, or I should say, N is a duplication of what is given in the figure AB. We have simply divided the unit. What if we want to multiply it instead?



We can express a unit by recursion in either direction, inductively or deductively. We also have now, three different ways of taking the square root of the composite figure for all three.



I suppose all of this is very interesting, however, what this is all leading to is the projection to point D and what it has to do with angle trisection. In other words, it is directly related to it. So, what I pointed out somewhere else, just a short time ago, that the Pythagorean Theorem was by no means completed by Pythagoras or a long history of angle enthusiast, angle trisection is itself directly related, very simply, to the unit as the following figure denotes, and which I put into the Delian Quest a long time ago.



As one can see, the trisection of any angle is simply the results of an algebraic equation; after all, the circle is the universe of discourse for a simple unit. I make plenty of mistakes to be sure, that is why I rely on programs a bit better than paper and pencil.

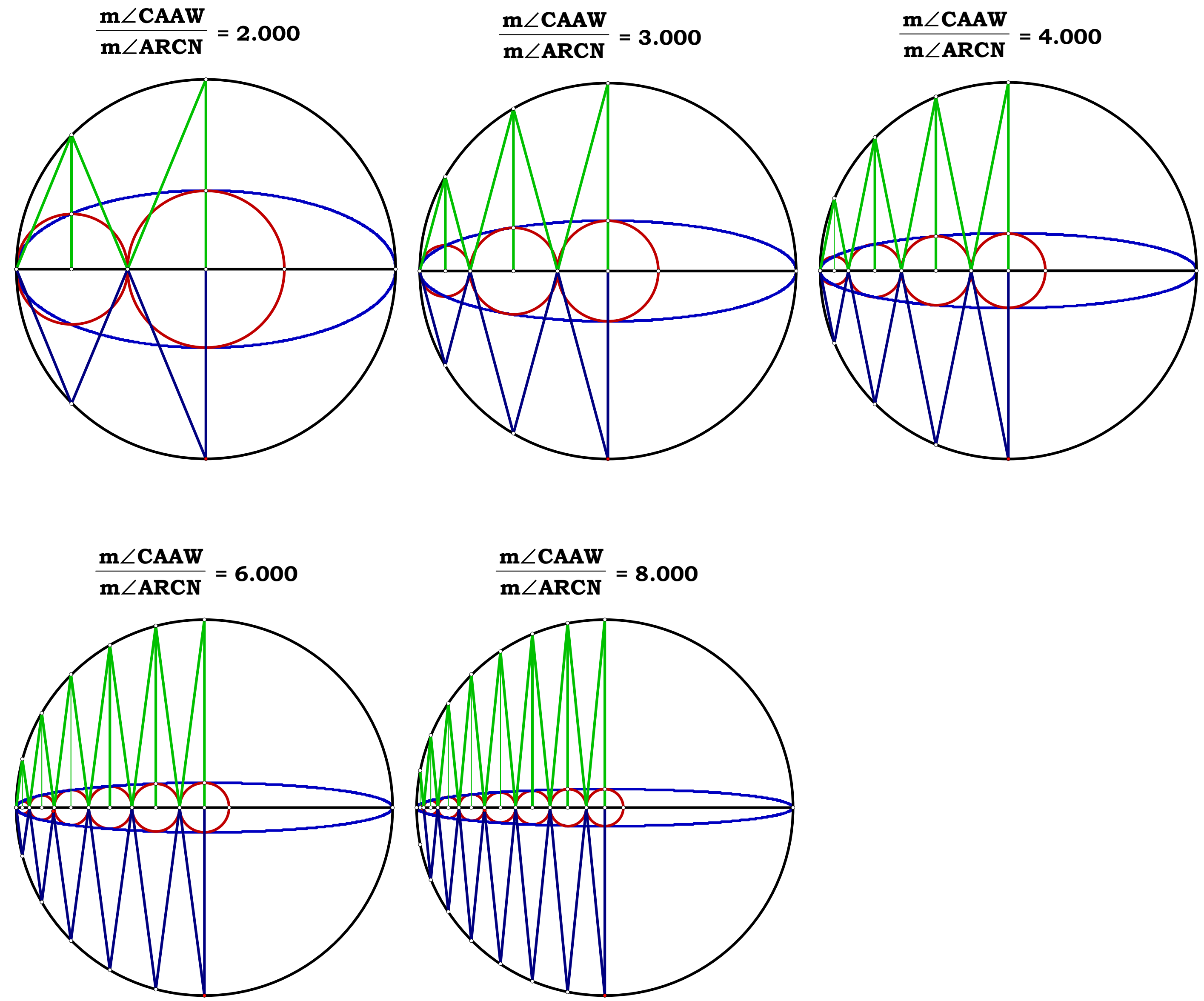
Anyway, three strikes and a hit on each one. Now, that is batting 1,000.

At any rate, I started the project called Three Pieces of Paper a long time ago, but it turned out there weren't much to put in it. Now the project Eloi, which is composed of a number of ways to solve for an ellipse was more fruitful. One of the first ones I took seriously was used to solve the Delian Problem. It too is an old project.

So, I will wrap this up with some plates on Archimedean Paper Trisector, which I decided, a while ago, that it should be completed too, but not by trying to do this with a piece of paper sliding around a circle. Why invent ordered naming conventions when you cannot use them? That is a lot like working to have your car kept in a locked garage. Myself, I can no longer even afford to drive one.

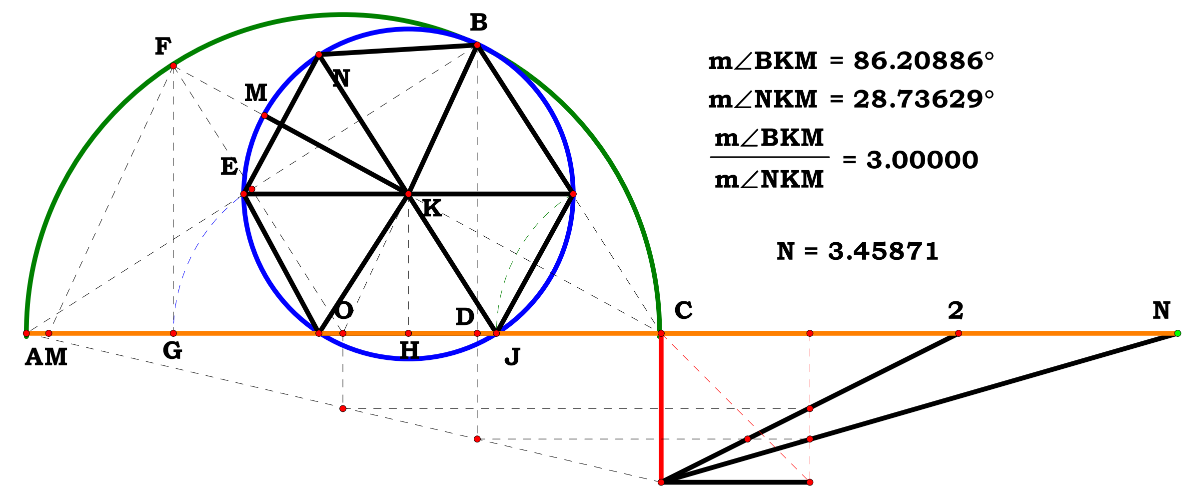
Conclusion

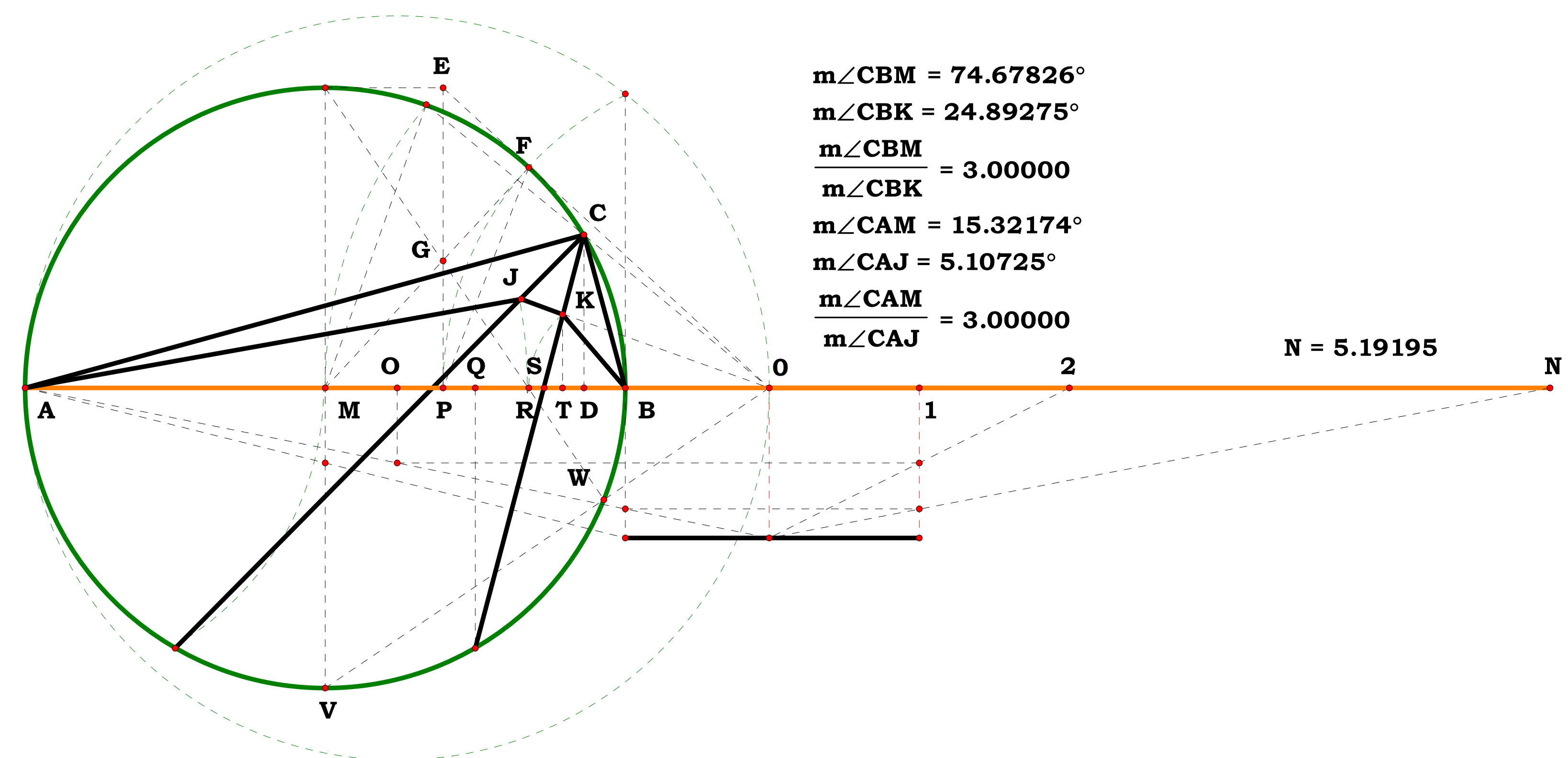
And so, as every circle tells you, straight on, an angle is a geometric progression, starting from a right angle, after all, an ellipse is an ellipse.



To claim that you cannot do this with a straightedge and compass is certainly an odd thing to say:—Every time your working with an ellipse, your dividing angles, what do you think complete induction and deduction means anyway?

Looking for Angels.





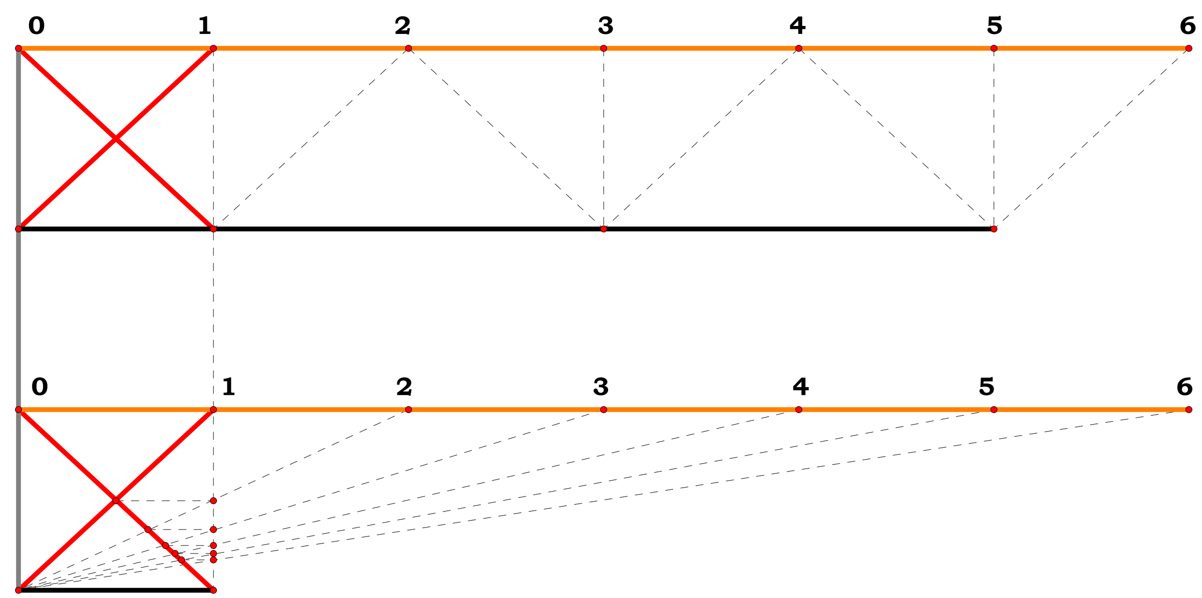
Grammar Basics

Friday, November 6, 2020

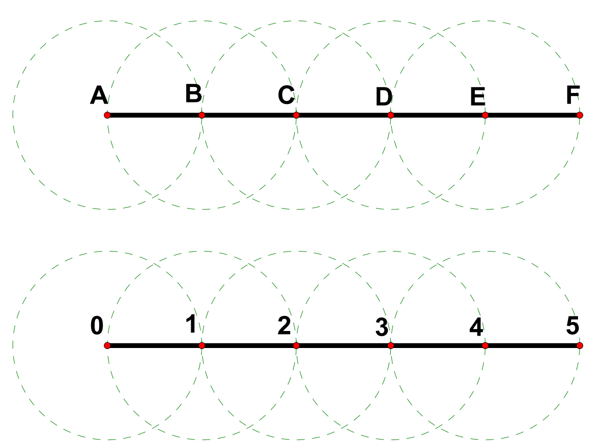
One should let the figure teach them grammar. The grammar the figure can teach you is applicable to every possible grammar.

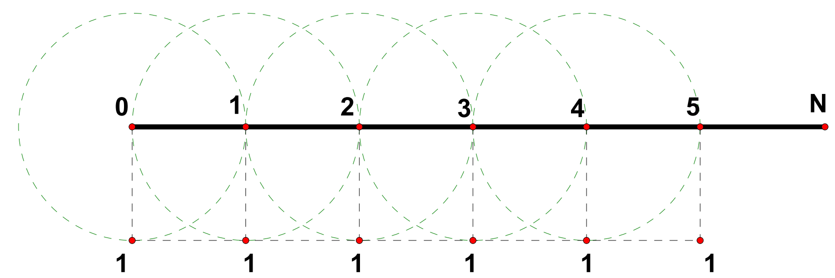
Complete Induction.

or counting.

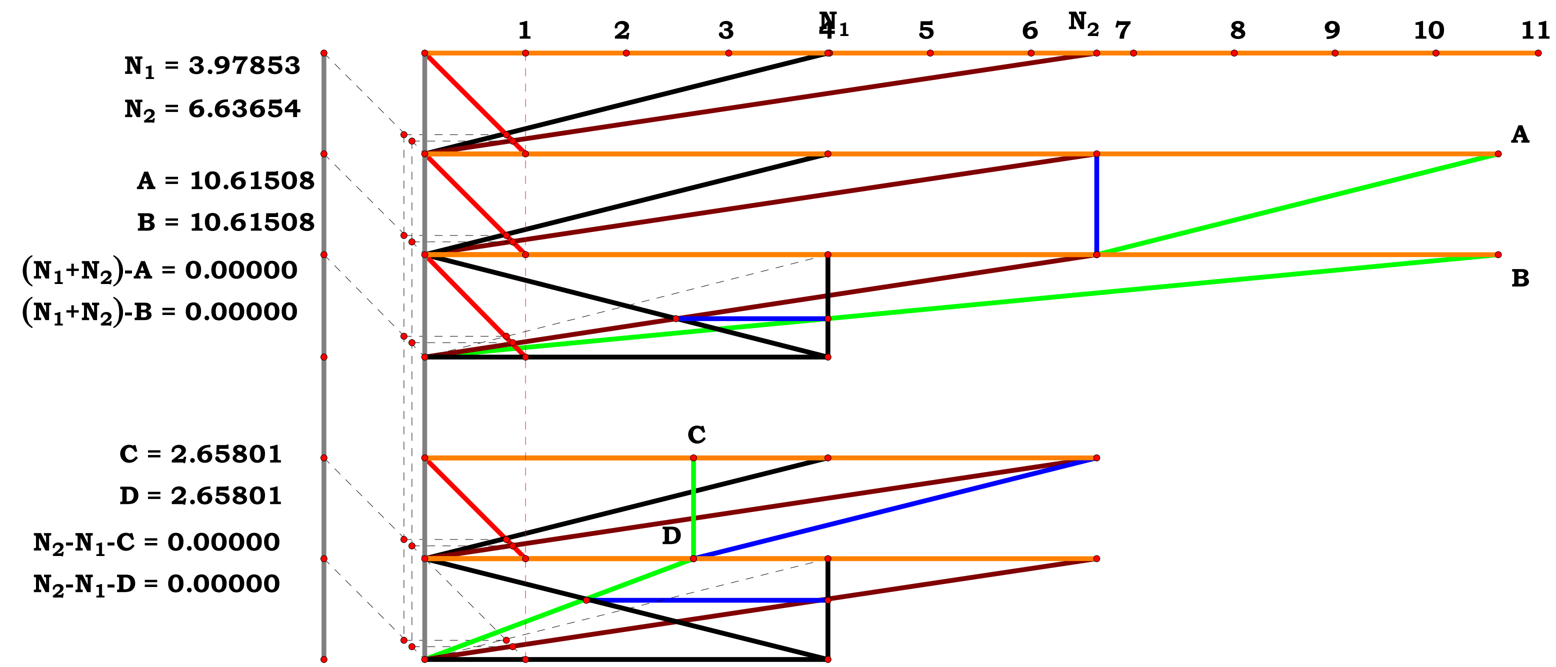


Basic paradigms, equal and unequal, greater and less, sum and difference, ratio.





Addition and Subtraction.



Addition

R_0 = 5.91077

(N_1+N_2)-R_0 = 0.00000

R_1 = 5.91077

(N_1+N_2)-R_1 = 0.00000

R_2 = 5.91077

(N_1+N_2)-R_2 = 0.00000

R_3 = 5.91077

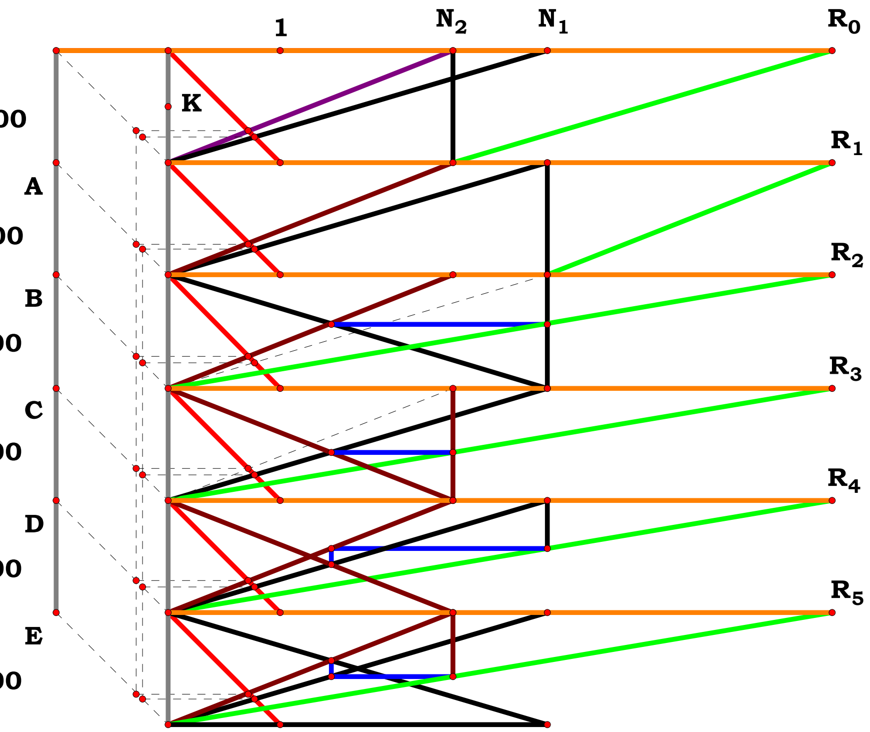
(N_1+N_2)-R_3 = 0.00000

R_4 = 5.91077

(N_1+N_2)-R_4 = 0.00000

R_5 = 5.91077

(N_1+N_2)-R_5 = 0.00000



Note: Point K can be used for projecting the converse, i.e. the converse of the operation, not the converse of the number.

Subtraction

N_1 = 4.17431

N_2 = 2.74723

R_0 = 1.42708

N_1-N_2-R_0 = 0.00000

R_1 = -1.42708

N_2-N_1-R_1 = 0.00000

R_2 = 1.42708

N_1-N_2-R_2 = 0.00000

R_3 = -1.42708

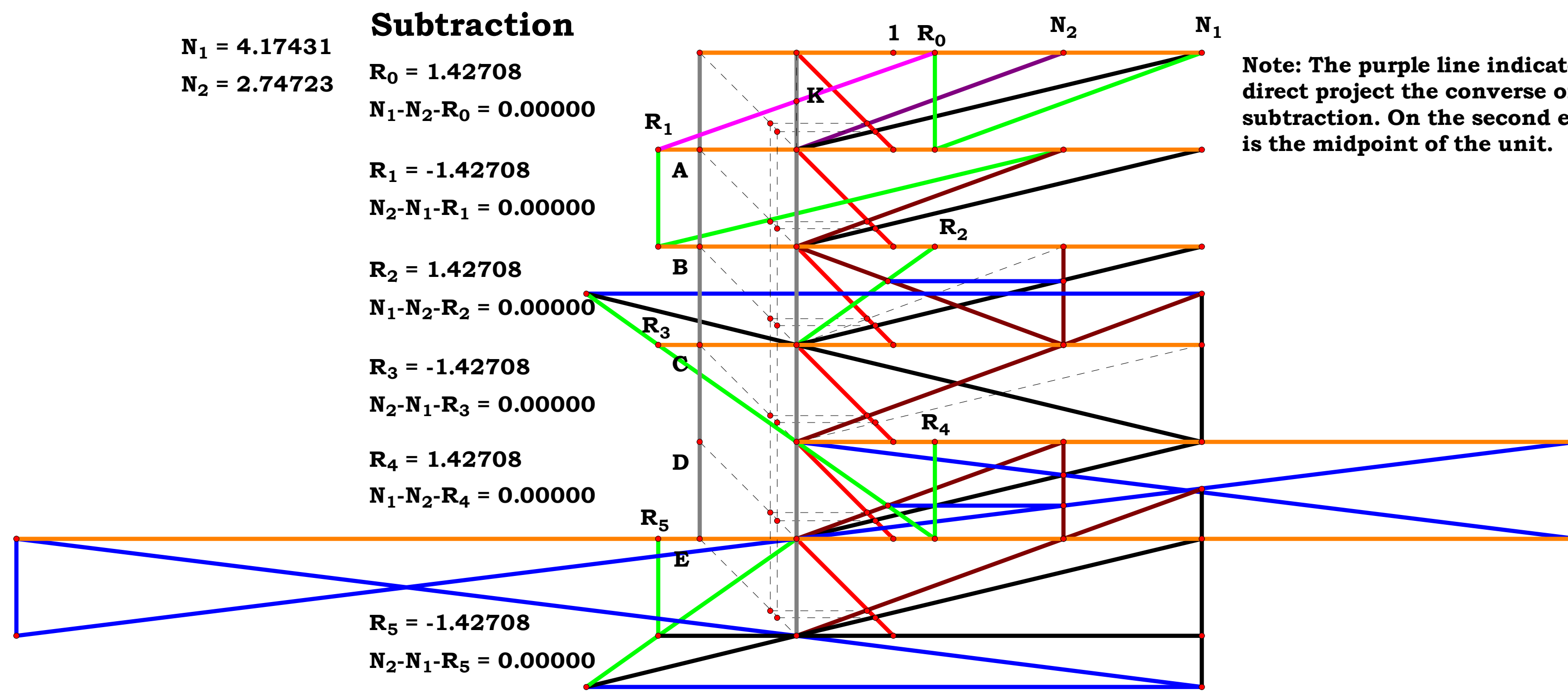
N_2-N_1-R_3 = 0.00000

R_4 = 1.42708

N_1-N_2-R_4 = 0.00000

R_5 = -1.42708

N_2-N_1-R_5 = 0.00000



Note: The purple line indicates how to direct project the converse of subtraction. On the second example, K is the midpoint of the unit.

Multiplication and Division

N_1 = 2.30957

N_2 = 4.43080

A = 10.23326

B = 10.23326

C = 10.23326

D = 10.23326

$N_1 \cdot N_2$-A = 0.00000

$N_1 \cdot N_2$-B = 0.00000

$N_1 \cdot N_2$-C = 0.00000

$N_1 \cdot N_2$-D = 0.00000

E = 0.52125

F = 0.52125

G = 0.52125

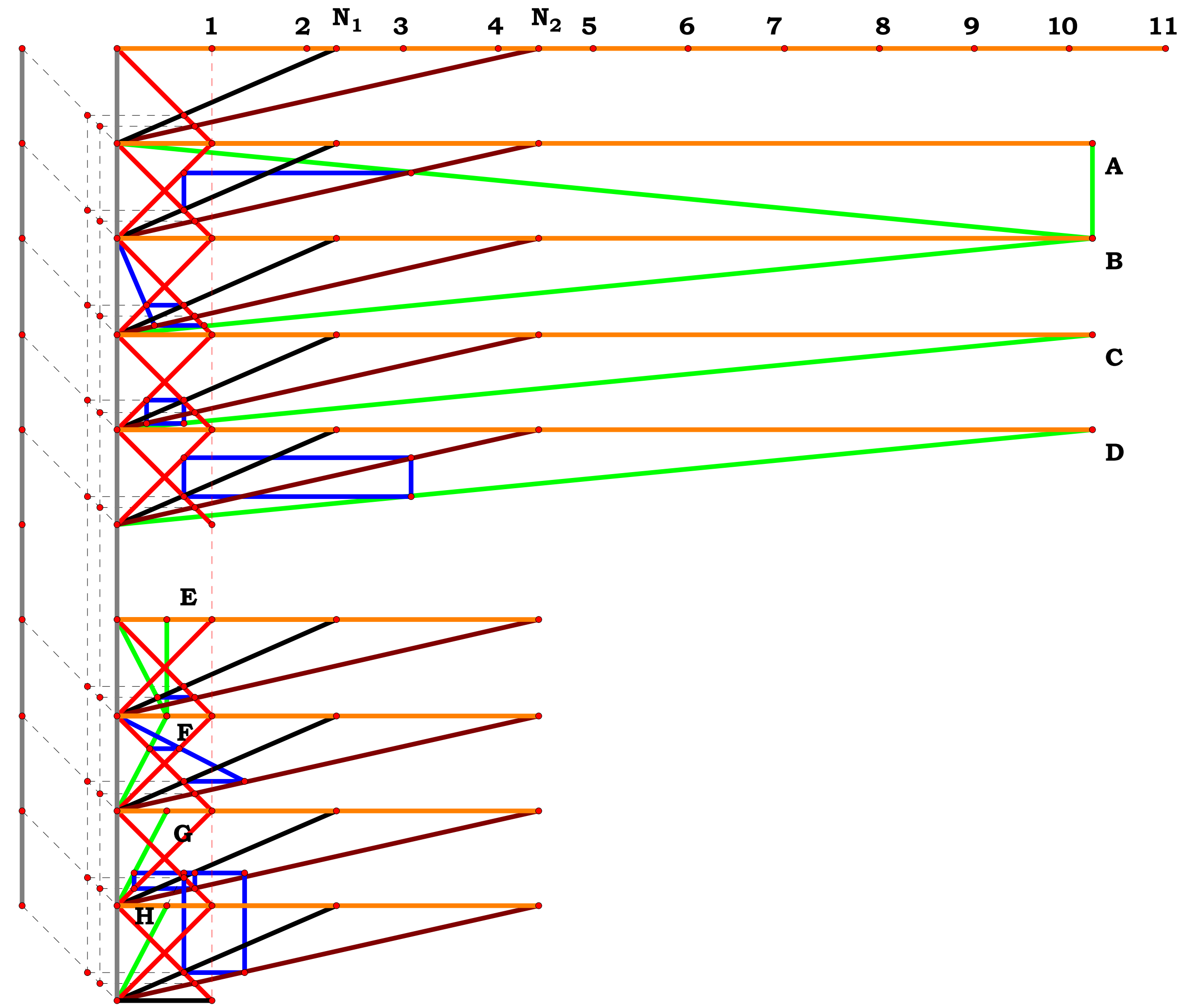
H = 0.52125

$\frac{N_1}{N_2}$-E = 0.00000

$\frac{N_1}{N_2}$-F = 0.00000

$\frac{N_1}{N_2}$-G = 0.00000

$\frac{N_1}{N_2}$-H = 0.00000



Square, Root and Reciprocal.

N = 2.52631

A = 6.38222

B = 6.38222

C = 6.38222

D = 6.38222

E = 6.38222

F = 6.38222

G = 1.58944

H = 0.39583

N^2-A = 0.00000

N^2-B = 0.00000

N^2-C = 0.00000

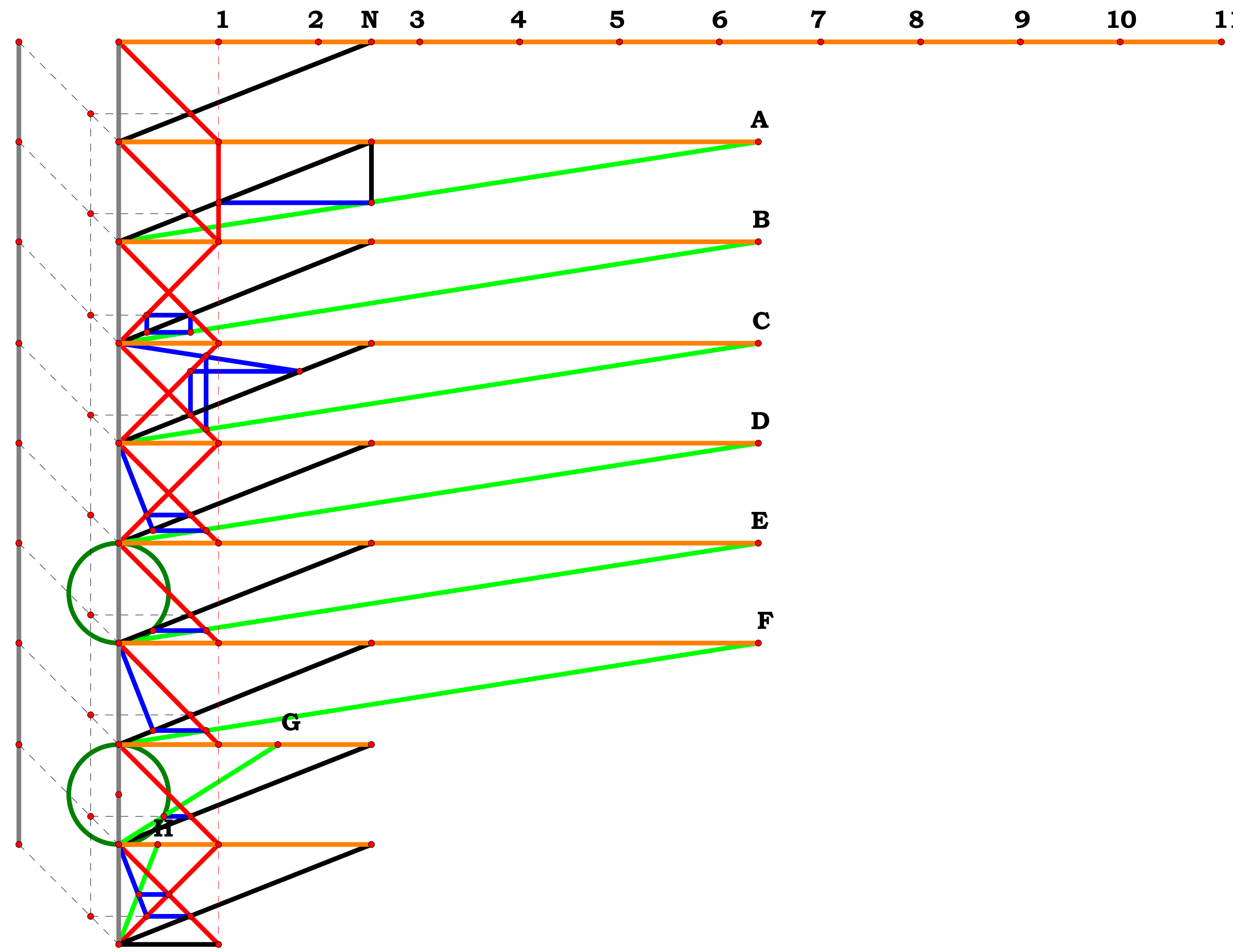
N^2-D = 0.00000

N^2-E = 0.00000

N^2-F = 0.00000

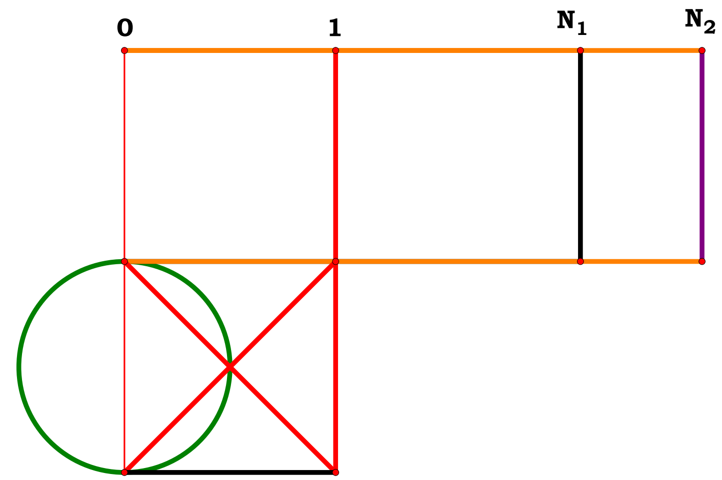
$\sqrt{N}$-G = 0.00000

$\frac{1}{N}$-H = 0.00000

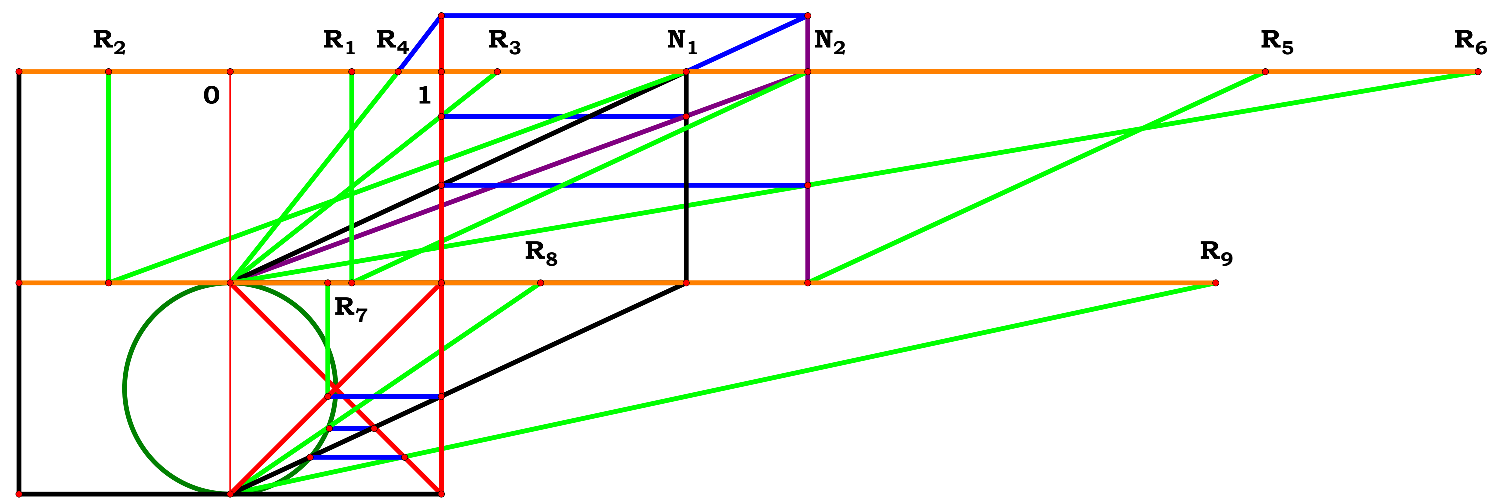


Basic Analog Mathematics.

Let 0 to 1 be the given Unit and N1 and N2 be any two given differences:



With the given analog (figure), it is required to render the products of these two differences using the paradigms sum, differences, and ratio:--



$N_2 - N_1 - R_1 = 0.00000$

$N_1 - N_2 - R_2 = 0.00000$

$(N_1+N_2) - R_5 = 0.00000$

$\frac{N_2}{N_1} - R_3 = 0.00000$

$\frac{N_1}{N_2} - R_4 = 0.00000$

$\frac{1}{N_1} - R_7 = 0.00000$

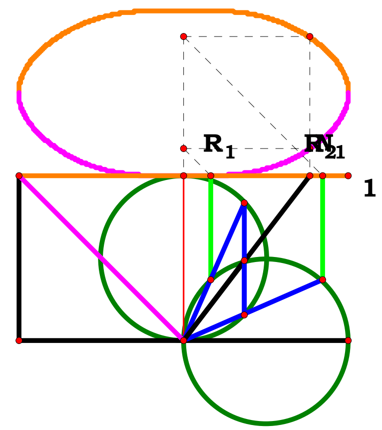
$N_1 \cdot N_2 - R_6 = 0.00000$

$\sqrt{N_1} - R_8 = 0.00000$

$N_1^2 - R_9 = 0.00000$

It should thus be clear that the so called mathematical paradigms exist *a priori* to Arithmetic and Algebraic Logic, that is--language systems--or in other words, Analogic precedes Logic. Or again, in a metaphor, perception determines conception, conception determines will, or in a more ancient metaphor, The Father, The Son, and the Holy Spirit are One. How can one claim that there are other geometries when every possible form of mathematics is easily demonstrated in one?

3OBT10AR0
3OBT10AR3



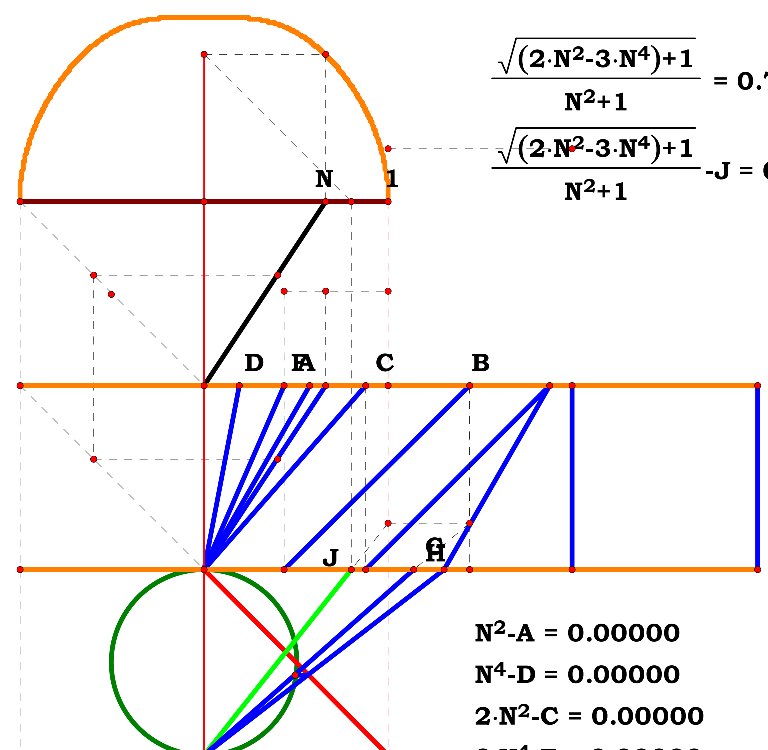
$N_1 = 0.76264$
$R_1 = 0.16123$
$R_2 = 0.83877$

$$\frac{(N_1^2+1)-\sqrt{(2\cdot N_1^2+1)-3\cdot N_1^4}}{2\cdot N_1^2+2} = 0.16123$$

$$\frac{N_1^2+1+\sqrt{(2\cdot N_1^2-3\cdot N_1^4)+1}}{2\cdot N_1^2+2} = 0.83877$$

$$\frac{N_1^2+1+\sqrt{(2\cdot N_1^2-3\cdot N_1^4)+1}}{2\cdot N_1^2+2}-\frac{(N_1^2+1)-\sqrt{(2\cdot N_1^2+1)-3\cdot N_1^4}}{2\cdot N_1^2+2} = 0.67755$$

$$\frac{\sqrt{(2\cdot N_1^2-3\cdot N_1^4)+1}}{N_1^2+1} = 0.67755$$



$$\frac{\sqrt{(2\cdot N^2-3\cdot N^4)+1}}{N^2+1} = 0.79409$$

$$\frac{\sqrt{(2\cdot N^2-3\cdot N^4)+1}}{N^2+1}-J = 0.00000$$

$N = 0.66074$
$A = 0.43658$
$B = 1.43658$
$C = 0.87315$
$D = 0.19060$
$F = 0.57180$
$G = 1.30136$
$H = 1.14077$
$J = 0.79409$

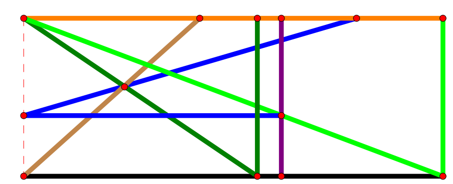
$N^2-A = 0.00000$
$N^4-D = 0.00000$
$2\cdot N^2-C = 0.00000$
$3\cdot N^4-F = 0.00000$
$(N^2+1)-B = 0.00000$
$((2\cdot N^2-3\cdot N^4)+1)-G = 0.00000$
$\sqrt{(2\cdot N^2-3\cdot N^4)+1}-H = 0.00000$

Grammar Resources

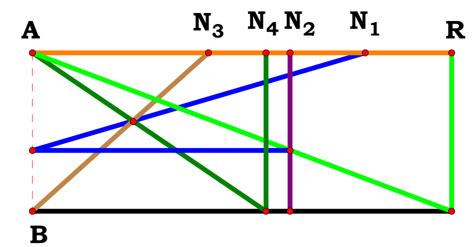
Friday, November 6, 2020

Grammar can be seen as four distinct methods of binary addressing or as counting, all of it designed to do our job as a mind, the regulation of behavior in order to maintain and promote life. The mastery of our behavior is the first requirement to mastering the behavior of anything else; this makes grammar the most important thing possible as it is part of our definition as a mind. The mythology and disregard of grammar today is simply symptomatic of our stage of evolution.

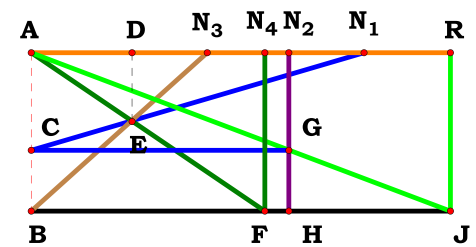
In every formal expression of grammar we pair logic with analogic, perception with conception. I am going to do a very concise summary of writing the logic to a simple analog, or glyph used in Jacob's Ladder.



As it stands we have no logical names for anything at all. To most it may appear to be some type of modern art or some meandering sketch. These sketches, however, do not just appear out of nowhere like words do that senseless men search histories and archaeologies for looking for meaning, as fact and as Plato affirmed, logical or analogical, names, in of themselves, have no meaning. One may as well ask a rock or tree what it means as a word; with one exception, a rock or a tree will always give you the same answer, not so man. We assert meaning as a means of doing our job as a mind; meaning is how we can profit by our behavior towards things.



We therefore apply logical names to the absolute portion of the analog. As the relative difference can be any relative difference what so ever, we are not getting into that at this time. We use either arithmetic names, such as 1, 2, 3, etc, common grammar names, such as A, B, C, or a combination, such as N_1. With these names we will start to construct Algebraic Names,



$N_1 = 2.10101$
$N_2 = 1.62626$
$N_3 = 1.11111$
$N_4 = 1.47475$
$R = 2.64325$

Unit. $AB := 1$ **Given.** $N_1 := 2.10101$ $N_2 := 1.62626$ $N_3 := 1.11111$ $N_4 := 1.47475$

Descriptions.

$$DE := \frac{N_3}{N_3 + N_4} \quad AD := N_4 \cdot DE \quad AC := \frac{DE \cdot N_1}{N_1 - AD} \quad R := \frac{N_2}{AC} \quad R = 2.643245$$

We start by pairing arithmetic names to common grammar names and then pairing the names of the points, also called nouns, from which we construct algebraic descriptions wholly formed by common grammar and arithmetic names. The end result will bring us back to a single name in common grammar and arithmetic. Common grammar uses relative naming while arithmetic absolute based on the indexing system. Combined they make an algebraic name. The equations, in each step of the process, are algebraic names, however, particular. As we accumulated names in common grammar and arithmetic, we now

attempt an accumulative algebraic name, which, sometimes is too complex to do. In this case the resolution is:

$$R - \frac{N_1 \cdot N_2 \cdot N_3 + N_1 \cdot N_2 \cdot N_4 - N_2 \cdot N_3 \cdot N_4}{N_1 \cdot N_3} = 0$$

This is how we show that our common grammar name, R, is equated by us to the Algebraic name we call an equation which is comprised wholly of our starting nouns. We see the Algebraic name still comprises nothing but nouns and verbs, absolutes, in terms of operations, and verbs in terms of our starting values as relative differences.

The above process is, however, only one method which is called arithmetic. Let us demonstrate it using geometric assignments. It will differ in this one respect.

$$N_u := 3 \qquad A := \frac{N_u}{N_1} \quad B := \frac{N_u}{N_2} \quad C := \frac{N_u}{N_3} \quad D := \frac{N_u}{N_4}$$

Every value is going to be relative to some given. This given can change all it wants, the results will not vary.

$$R - \frac{N_u \cdot (C - A + D)}{B \cdot D} = 0$$

Notice that the equations do not look the same but are identical for the product.

$$\frac{N_1 \cdot N_2 \cdot N_3 + N_1 \cdot N_2 \cdot N_4 - N_2 \cdot N_3 \cdot N_4}{N_1 \cdot N_3} - \frac{N_u \cdot (C - A + D)}{B \cdot D} = 0$$

The first way that we did the equation, we call particular to some thing, the second method is universal. You can change N_u all you want but the answer will not vary at all. So what good is it? One can call it a zoom control. Unlike mystics who claim that nature makes laws, which mean that they have a grammar education better than man has ever devised, and that the Laws of Nature change in accordance to what one is writing

about, or its appearance to some sense of the body, as if by some divine magic, our second equation states that no matter what we write about, great or small, bird, rock or man, the answer is going to be the same for the same means of measure. Thus, in writing the analog grammar to the algebraic logic, the first equation would have us chasing values so far off our starting page that we would often have to resort to satellite surveillance to find the end of it, while the second method can be used to change the scale, meaning any set of equations can always fit on a single page, well almost, it depends on how thick our pencil led is.

Every equation, absolute or relative, however, produces a relative result. What is an absolute result for an equation? It is called a logical operator; it produces only assertions and denials. Every possible equation can be also expressed as a logical operator.

Relative Logical Operators 1CST7R8

Descriptions.

$$\frac{\mathbf{A}\cdot\mathbf{B}\cdot(\mathbf{C}+\mathbf{D})-\mathbf{B}\cdot\mathbf{C}\cdot\mathbf{D}}{\mathbf{A}\cdot\mathbf{C}} = \mathbf{2.643245} \qquad \mathbf{Num} := \frac{\mathbf{A}\cdot\mathbf{B}\cdot(\mathbf{C}+\mathbf{D})-\mathbf{B}\cdot\mathbf{C}\cdot\mathbf{D}}{\sqrt{[\mathbf{A}\cdot\mathbf{B}\cdot(\mathbf{C}+\mathbf{D})-\mathbf{B}\cdot\mathbf{C}\cdot\mathbf{D}]^{2}}} \qquad \mathbf{Den} := \frac{\mathbf{A}\cdot\mathbf{C}}{\sqrt{(\mathbf{A}\cdot\mathbf{C})^{2}}} \qquad \mathbf{L} := \frac{\mathbf{Num}}{\mathbf{Den}}$$

Definitions.

$$\mathbf{Num} = \mathbf{1} \qquad \mathbf{Den} = \mathbf{1} \qquad \mathbf{L} = \mathbf{1}$$

$$\mathbf{L} - \frac{\sqrt{\mathbf{A}^{2}\cdot\mathbf{C}^{2}}\cdot[\mathbf{A}\cdot\mathbf{B}\cdot(\mathbf{C}+\mathbf{D})-\mathbf{B}\cdot\mathbf{C}\cdot\mathbf{D}]}{\mathbf{A}\cdot\mathbf{C}\cdot\sqrt{[\mathbf{A}\cdot\mathbf{B}\cdot(\mathbf{C}+\mathbf{D})-\mathbf{B}\cdot\mathbf{C}\cdot\mathbf{D}]^{2}}} = \mathbf{0}$$

Thus one can formulate conditional statements by combining logical operators with other equations. Logical operators are used to find any result in accordance with some given.

And we can do the same for our second type of equation.

Unit. $AB := 1$ **Given.** $N_1 := 2.10101$ $N_2 := 1.62626$ $N_3 := 1.11111$ $N_4 := 1.47475$

$$N_u := 3 \quad A := \frac{N_u}{N_1} \quad B := \frac{N_u}{N_2} \quad C := \frac{N_u}{N_3} \quad D := \frac{N_u}{N_4}$$

Absolute Logical Operators 1CST7R8

Descriptions.

$$\frac{N_u \cdot (C - A + D)}{B \cdot D} = 2.643245 \qquad Num := \frac{N_u \cdot (C - A + D)}{\sqrt{\left[N_u \cdot (C - A + D)\right]^2}} \qquad Den := \frac{B \cdot D}{\sqrt{(B \cdot D)^2}} \qquad L := \frac{Num}{Den}$$

Definitions.

$Num = 1$ $Den = 1$ $L = 1$

$$\frac{Num}{Den} = 1 \qquad L - \frac{N_u \cdot \sqrt{B^2 \cdot D^2} \cdot (C - A + D)}{B \cdot D \cdot \sqrt{N_u^{\,2} \cdot (C - A + D)^2}} = 0$$

There is another thing I want to mention. Each of these uses of the analog and logical grammar systems rely on a number of givens. This means that each can be transformed by setting each of the givens to unity which produces 2 to the number of givens for results, or 2^n. These I call transforms. If I have 4 givens, then I have sixteen equations the analog figure can represent; if I have eight givens, I have 256 equations the glyph can represent. Or one can call them the logical family of an analog name. Thus one can see very plainly, that one will reach different conclusions in accordance with the number of things we do not know about a thing. All things being equal, means our ignorance of givens affect what we know of anything.

And, one should realize by now, I believe that plotting points as has been common for a long time is absolutely stupid as the analog geometry can project the waves, every one of them, by itself. So called Cartesian Geometry is not geometry at all. As we construct measuring systems with geometry, we certainly do not start with one as a given, or in simple,

we do not start with a measuring stick, much less two or three of them claiming we now have xy and z coordinates unless we are making a tv or 3d screen which is simplified application, not a formal grammar.

Also, if one noticed from the start, we start this process with common grammar and arithmetic. To solve for any equation, with at least one given, one can use the wave portion of a glyph to find a suitable solution to a given problem. Equations are not something to be solved, they are just the products of grammars which we construct, so if we knew what we were doing, solving for an equation is like asking our self what in the hell have we been doing? Every grammar book I have ever seen starts in the middle and gets lost in the end. I am not a big fan of trying to answer questions about things I know nothing about, especially when part of the question assumes that the given is something which appears mysteriously in nature. We construct grammar systems commensurate with our linguistic awareness, we do not discover them.

I do not use Trigonometry, Cartesian Coordinate Geometry, or Calculus. Not one of those satisfies the requirements of a grammar system. They may do for felting your hat, but in the end they will drive you mad.

Language and Grammar

Friday, November 6, 2020

Self realization begins when one comprehends that the mind, what we are, is one of the life support systems of the body; in short, it is evolving for the salvation of our soul, or our life. The biblical statement that man is being made in the image of God is a metaphor for the fact that a mind is a virtual information processor designed to parse and virtualize the entire environment through the Artifice of Language effected by grammar systems and that this ability is the product not only of evolution, but of guided evolution as well. Grammar systems, when correctly formulated from the binary of Language as a pure conceptual abstraction, affords mankind the ability to record the past, live by our own definition in the present and predict the future of our entire environment. The mind, when functional, is the most powerful life support system possible. One can say that the mind is a virtual reality organ of the body made to predict life supporting behavior by the management of time through grammar.

Language is a simple binary, off, on, off; or again, absolute, relative, absolute; or again, correlative, relative, correlative; or again, noun, verb, noun. In the simple, the container and the contained, or a wave function, or even quanta function. If you want practice at it, use your light switch. The relative difference of light to the senses is gated by a simple wall switch.

Every possible grammar system is a method of taking advantage of this binary for information management in the human mind. My work centers on the analog grammar of geometry, a grammar every possible logical grammar can be expressed in.

As the two conceptual abstractions afforded by Language produce the Platonic expression of First Principles, or first principle parts of any thing

and they were call the elements, the same meaning is used by Euclid to construct the *Elements* which we only have a highly altered version of it today, I work on geometry simply because of its pathetically primitive state in the world today. Instead of developing it, it is mythologized just like the Bible and every other work man puts his hand to even though I am not, as they say, the sharpest tool in the shed. The elements of a thing produce a unit, a thing, 1, which is a Conjugate Binary Pair of a relative constrained by correlatives. Every possible grammar, when correctly comprehended, is simply a method of affording us complete induction and deduction, or again, the whole of thought or the ability to virtualize the environment, of a unit, or again, thing as a binary; the two elements of any thing.

When one is too simple, they are not capable of comprehending Language or grammar. They may be able to memorize grammar books, and grammatical methods, but not actually comprehend. They cannot tell the difference between fictions and fact, right from wrong, real from imaginary. Those who do not comprehend grammar are often motivated to fictionalize it such as non-Euclidean Geometry. If a unit can be different from itself, then grammar would be impossible; this means that all of the teachings, in schools, colleges, universities, are factually counter-productive to human interest and ability. Today, the human race is proto-linguistic; evolution will continue to effect individuals capable of holding onto simple fact. If you cannot comprehend that all of grammar is processed by this one conceptual binary, you do not comprehend your own computer. There is not one correct grammar book which is socially taught, even today. Nor can you comprehend the literature in history which was used to guide mankind into comprehending and using binary.

To start one's quest into Geometry, one should view the straightedge and compass not only perceptually, but also intelligibly. The straightedge affords us the ability to render a unit, while the compass complete

induction and deduction of it. It also means, contrary to the simple minded, that we can construct tools from them just like we can construct figures. The tools are used inductively and deductively just like their products. Unless one is very stupid, it is not the tools which make a thing possible or not, it is the unit, by complete induction and deduction. If you say that cube roots cannot be produced with the instruments one writes a grammar system in, you are not even in the room in regard to a logical argument. It is like claiming one cannot write an equation unless one has a particular set of quills.

Those who have claimed that one cannot effect the cube root of two by straight-edge and compass never had the wit to apply complete induction and deduction to the tools which is a fault of being illiterate and primitive. Primitive people believe that they can construct grammar systems when in fact, it is something we learn when we can comprehend the Universals of Language. As the principles of language do not change, our grammar matrix, derived from language, when effected in accordance with language, cannot fundamentally change either. Those who claim that grammar systems are anything we please are what can be called those who are not anchored in reality.

The aim of my work is for the eventual the development of a grammar matrix recognized by our entire species. This grammar matrix will, through constant use, help effect our evolution as a species.

Language is Universal and Intelligible, grammars are particular and perceptible; Grammars are the product of one's intelligence which is a biological given, just like language. One cannot invent language, nor intelligence. Nor is it possible, through grammar systems, to make intelligence, contrary to those mythologists who can make simple minded people believe that Artificial Intelligence means anything more than Not Intelligent, cool gadget or not. Only a dumb-ass holds a Smart Phone.

It is not possible to be self aware and sit through our educational institutions today in order to just memorize gibberish.

Looking for Angels

3/5/2018

Have you ever thought, and perhaps have committed it yourself, that an angle is just a typo for an angel? Or even the reverse? They both have wings, right? Now, it may be of some concern, that one knows where they are going, but the other just goes *duh*. That is very disturbing. One can have a ball on the head of a pin, complete with orchestra and lights, while the other gets lost looking for a pencil because it cannot even find the light switch.

I am want to leave *The Universal Language* where it is at present. I am not one who actually enjoys the minutia of trying to say something, or set it down, especially when I am antsy to get on my way to explore something else and also since I am, myself, so unfamiliar with actually talking with anyone. I think, in regard to BAM, I way over did the minutia to begin with. However, the time I spent on that minutia certainly put my thoughts into order, like chicken baking in the oven. But now, I want to go back to a project I put on the back burner years ago. I can now attack it from a sounder base:—The Angle.

Now I have examples derived from my own work. The information which I have accrued, like most of everything else, I have not found in any work. The hair brained use of Trigonometry, in my opinion, only leaves one as they started, just really stupid. To me, running off and creating bull-shit, when one has not even examined what they do have, is not the endeavor of someone who is wholly cognizant of themselves. Who, in their right mind, writes theories about the Universe, when they start from a foundation, which, their own education tells them is not even sound? Anyone, taking a grammar class, should at least, if they say nothing to the teacher, think within, *What the Fuck*? Enough of the rant.

I am going to spend some time, putting into a starting document, what I have learned about angles. This time, however, I am fully aware that what I am doing, is finding a way by which one correctly proportions a unit, itself, in relation to itself. I just have a suspicion that if one wants to comprehend dimensional progression, in regard to a unit, then that is where one starts. And, I have got up and running, a working pdf of Plato in the Nude, which can drone on in my ear as I work, when I am not watching Marvel cinema. Got to keep up with the comics.

I started my study of geometry as I was approaching my 40's, never having it presented to me in public education. Now, I am approaching my 70's. So, I would not expect much.

I will start off this project with a pdf of the project left undone from 2005, when I called the project, Three Pieces of Paper. At the time, I did not pay much attention to BAM, because I actually took it for granted that the process had to have been known. How could it not? But a thought kept nagging at me, so I went searching on the internet, and then it dawned on me, it was not known, so I had to leave the work off and work it out. What was on the internet was just so undeveloped and primitive.

So, I am wandering off, again, onto another exploit…

Project Notes.

12/9/2017

I have decided to start doing something constructive with the Geometric Series studies. As an aid to keeping program setting normalized I have the working programs installed in an XP 64bit virtual box. Now, the current directory is named Geometric Series, but this project will start a new directory with the original files and simply called Recursion, after all, the terms are synonyms. Just sorting the original mess out and arriving at a common template to present the work in will take some time. It also surprises me that the last time I turned my attention into sorting series mess was back in 2015, not that long ago. Still, I have to relearn each figure, I did not exactly leave anything which might be called a detailed account of the figure.

What one is examining is recursion which has no limit, such as complete induction, and recursion upon which a limit has been set. How that limit is set, either arithmetically, or geometrically, divides the work.

What I have to do is separate each figure, give it is own directory, then sort them, yada, yada, yada.

I started parsing the file called sketches, a name which is decidedly very informative, and found that what should come before it was the write-up called Curve of the Equation, which one will find in AUL. So, although I had the pdf at hand, for the life of me I could not find the original work which I used to make the pdf. I did a number of searches of the entire drive before I found it. The directory, for some unknown reason, was in a folder called *retired*. The plates to the MathCad are in a file called Roll-in, not a name I would ever arrive at in searching for's.

At one time, I was parsing my work and one part of that parsing I called Eloi, which was wholly concerned with ellipses, which, if I ever get the time, waiting in line for it now, I would like to turn into a complete

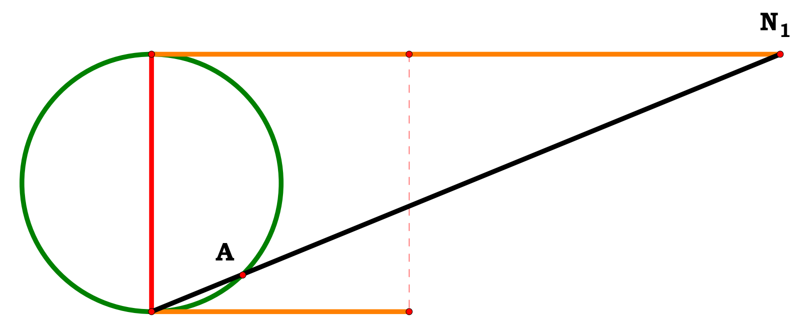
work. One of the items that playing with ellipses should teach one is that a circle is simply an expressed ratio, just like an ellipse. Which means, the mathematics of a circle, involves just 2 variables, which anyone should have figured out as all one has to do is ask themselves just what does two-dimensions mean? It means that every thing in two-dimensions is subject to complete induction by two units. It also means, that I can remain almost wholly ignorant of trigonometry which does not go down to first principles, nor complies with the principles of geometry itself. It appears to be a method one would devise, late at night, while sitting in a bar.

Now, turning one's compass around in circles means that one has a short-cut to producing a circle, while at the same time producing an empty space between the ears by which one attempts to fill with gibberish, since their memory, that complete induction is afforded by a unit, quickly runs out the other ear, while picking up a little wax to play with. How many people ever actually considered the question, does a compass negate the concept of complete induction, or are we simple minded? If someone had invented a simple device for producing every ratio between two units, that is a way to draw ellipses other than stealing one's shoe-strings and messing with knots and pins, then the two tools for geometry would probably have ended up as a straight-edge and rumpus, neither of which change the fact of complete induction. Instead we have the compass along with the self-referential fallacy expressed by the phrase, *Conic Sections*, as if the prior is defined in terms of the posterior.

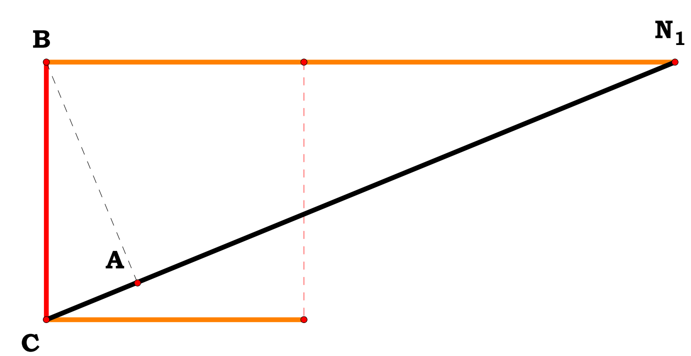
If it really is a conic section, how come it can be produced with two, and only two differences?

The Circle

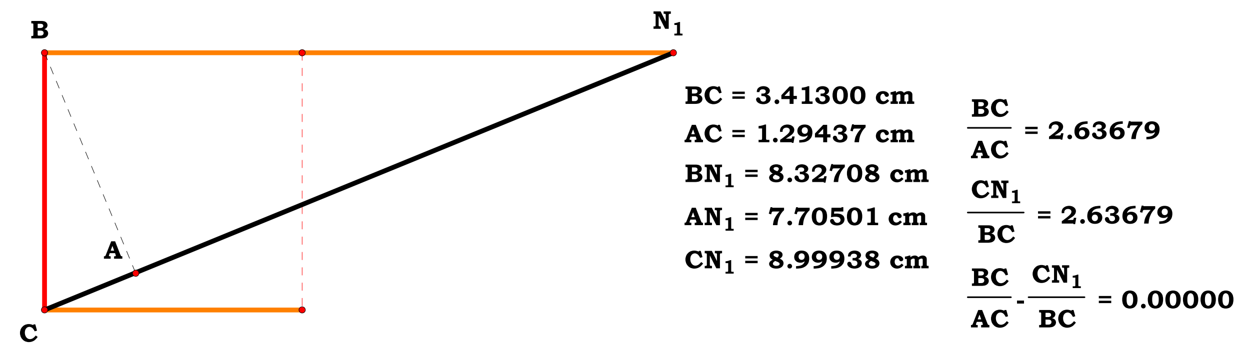
Thinking about the circle can be a bit tricky: For example:



You might describe the point A as an intersection of a line with the circle, which is a perceptible description, but not a definition. You will find however, in many of your drawings in a drawing program produces a results that does not always work. Drawing programs use an x, y, coordinate system to work which is not always true. A drawing program cannot read your mind. One has to look at the point A as an intelligible, not a perceptible.

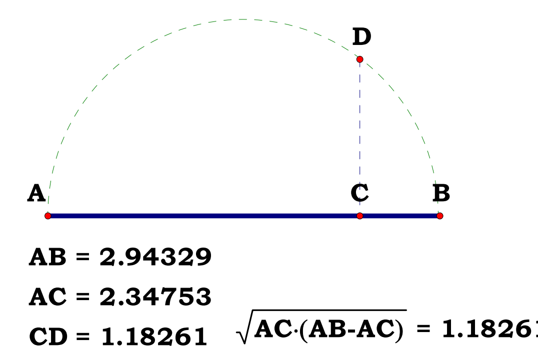


A is one correlative of AB which is perpendicular to CN_1. As BC is to CN_1, so too AC is to BC.



We must turn the perceptible into the correct intelligible.

By the same process you should be able to write an equation for any point along any segment such as BC as to where it would hit our imaginary circle. Given some C on AB, CD would be AC = $\sqrt{AC \times (AB - AC)}$.



Thus, instead of attempting to define a circle in terms of the motions of the hand, a perceptible process, one defines a circle in terms of what it actually is in relation to a unit. Another way of looking at DC is that it is a mean proportional to any other segment less than AB, DC being then half of that segment.

Had Euclid done that, then some pretty stupid propositions in the work would have been quickly resolved into intelligible fact. A book on geometry should draw attention to the fact that early demonstrations contain perceptible descriptions and that the learning process will displace those descriptions with an intelligible fact.

The Segment in geometry is a unit. It seems to escape notice that if a unit affords us complete induction and deduction for a grammar, every thing following the unit will be a recursion of that unit using both of its elements. Nothing new is created, noting new is distinct and outside of the class afforded by the unit. The circle is a unit of intelligible processing of that segment into parts. We can describe the perceptible results, such as the definition of a circle given in Euclid, but that is not actually a definition, it is a description.

For any C, on any segment AB, C is the mean proportional to a segment, of 2 × $\sqrt{AC \times (AB - AC)}$ which is always less than AB. Some would say, a locus of points, as if one can have a group of boundaries which is totally absurd, but then those same people claim that a segment is a group of points also, referring not to something intelligible, but to unprocessed perceptible possibilities one may as well claim one can make a salad, or even a whole banquet, by waving one's knife in the air an infinite number of times.

We then have defined a segment in terms of a standard of our behavior recursively using our unit and a circle is a product of that recursion. Those standards are mapped and presented perceptibly, however that is not the intelligible, nor provides the intelligence to comprehend it. In short, we have only constructed indexes to standards of our own behavior.

A circle is the product of such and such recursion of our unit. And since it is a very useful and primitive recursion, it is absolutely absurd to claim to be able to define a circle in terms of some perceptible situation one might propose for it.

When you think about it, the circle is the product of the simplest recursion applied to a segment possible. Not to comprehend it is rather unfortunate. How unfortunate is it when stores become popular with the so called intelligentsia that geometry can be done only with a

straightedge or only with a compass etc? Really? Who is hiding the intelligentsia?

Taking the above to its ultimate conclusion, we find that when we locate a point on any segment, that point can, and is used, to find not just a point, but a correlative, the mean proportional to a whole class, an address to another DIMENSION! Shades of Fringe! This is how one works so called Set Theory, it is just a fact of an indexing system which is without limit, or a form of behavior, but it is only alien when one is ailing.

One can work at understanding the mind's system of indexing information, or one can sit and construct mythologies and call it a social science, or a mathematic science, or some other kind of fancy, and wholly absurd, name, or in short, stuck in a rut of renaming names, forged by some pooka to construct a whole mythology, a collection of names, for a particular name. How depressing.

01 Grammar Basics

John 312

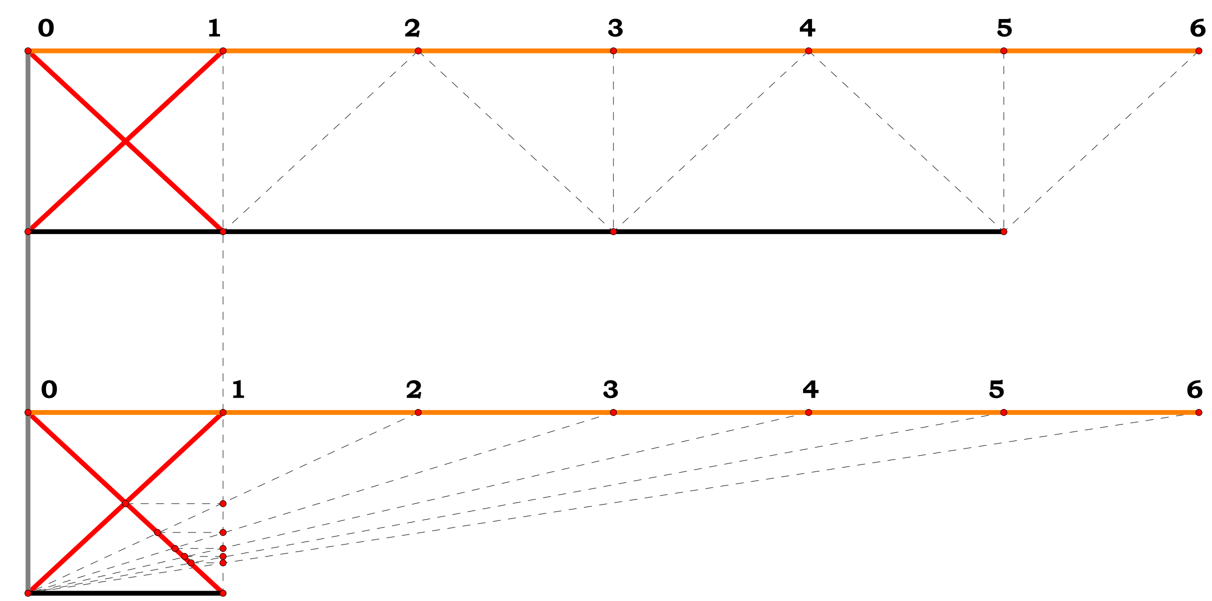
Grammar Basics

Friday, November 6, 2020

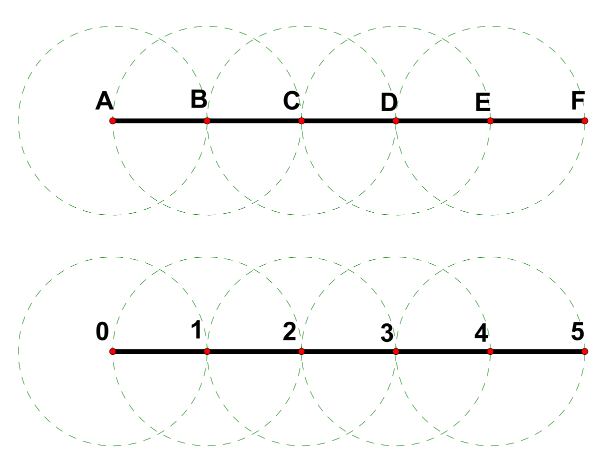
One should let the figure teach them grammar. The grammar the figure can teach you is applicable to every possible grammar.

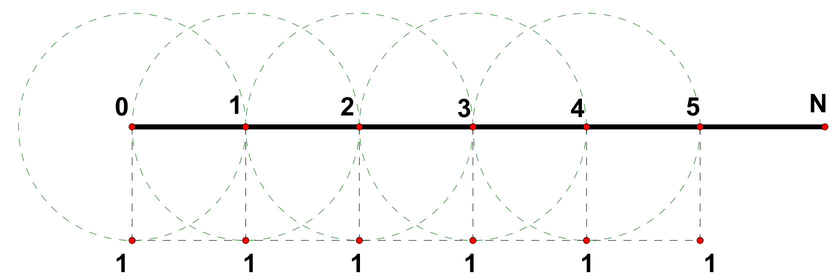
Complete Induction.

or counting.

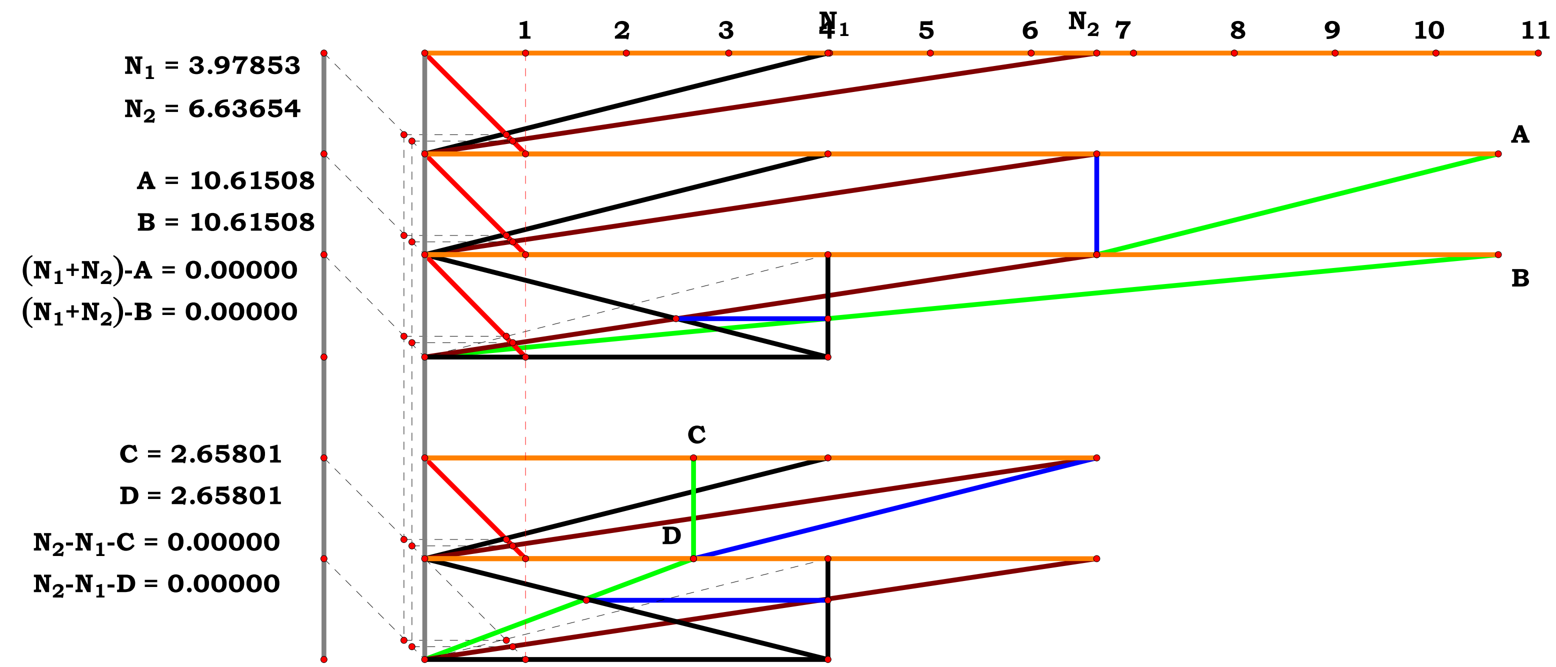


Basic paradigms, equal and unequal, greater and less, sum and difference, ratio.





Addition and Subtraction.



Addition

$R_0 = 5.91077$
$(N_1+N_2)-R_0 = 0.00000$

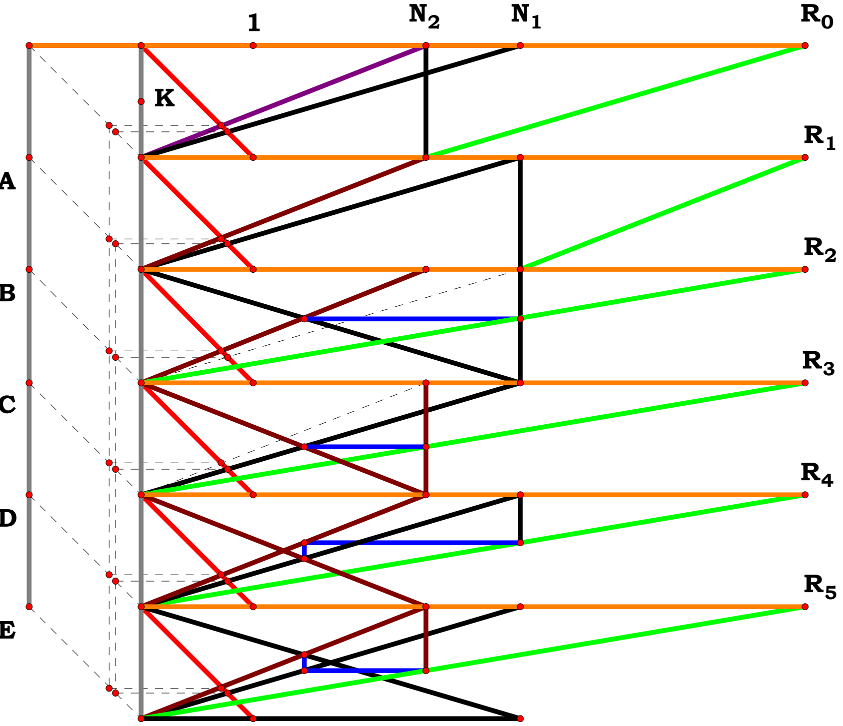
$R_1 = 5.91077$
$(N_1+N_2)-R_1 = 0.00000$

$R_2 = 5.91077$
$(N_1+N_2)-R_2 = 0.00000$

$R_3 = 5.91077$
$(N_1+N_2)-R_3 = 0.00000$

$R_4 = 5.91077$
$(N_1+N_2)-R_4 = 0.00000$

$R_5 = 5.91077$
$(N_1+N_2)-R_5 = 0.00000$



Note: Point K can be used for projecting the converse, i.e. the converse of the operation, not the converse of the number.

Subtraction

$N_1 = 4.17431$
$N_2 = 2.74723$

$R_0 = 1.42708$
$N_1\text{-}N_2\text{-}R_0 = 0.00000$

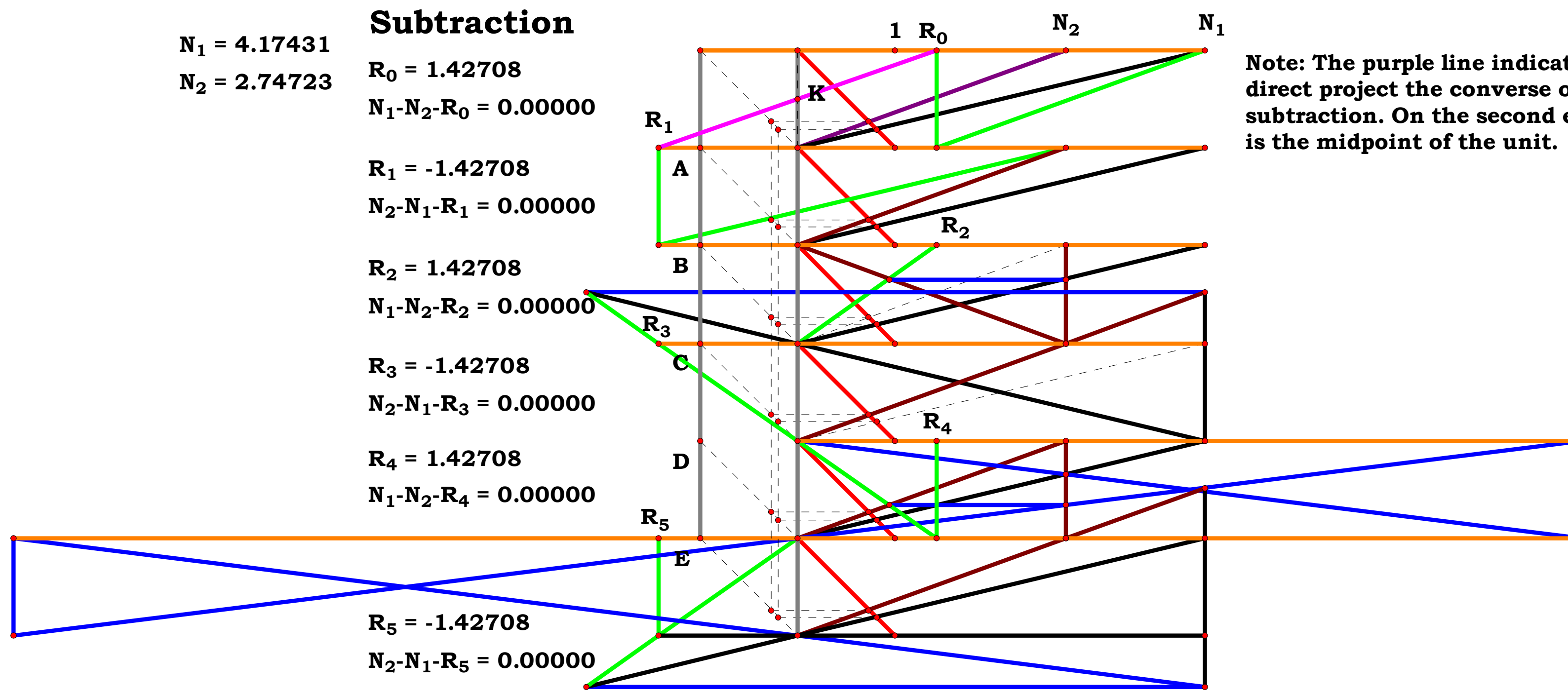
$R_1 = -1.42708$
$N_2\text{-}N_1\text{-}R_1 = 0.00000$

$R_2 = 1.42708$
$N_1\text{-}N_2\text{-}R_2 = 0.00000$

$R_3 = -1.42708$
$N_2\text{-}N_1\text{-}R_3 = 0.00000$

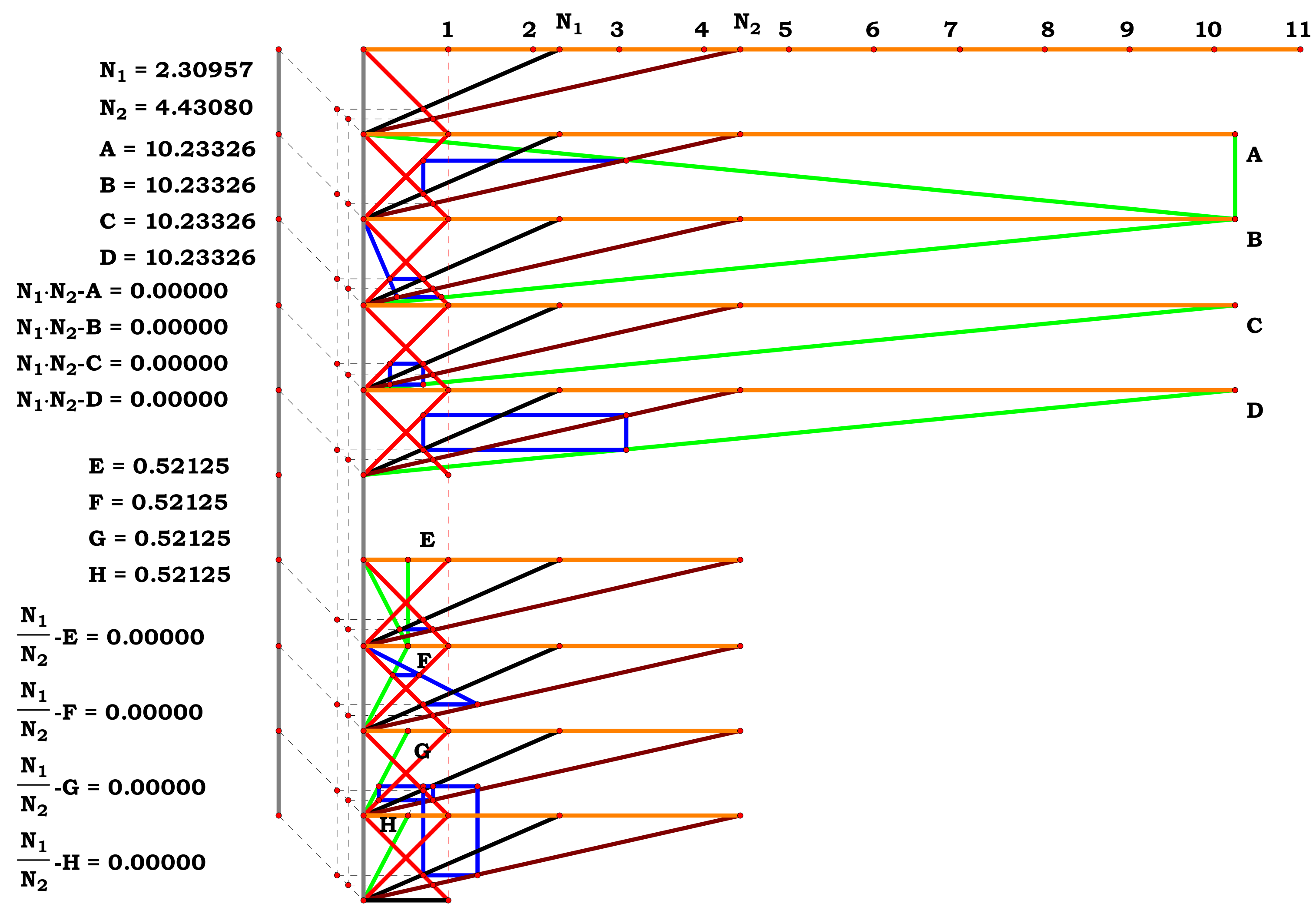
$R_4 = 1.42708$
$N_1\text{-}N_2\text{-}R_4 = 0.00000$

$R_5 = -1.42708$
$N_2\text{-}N_1\text{-}R_5 = 0.00000$



Note: The purple line indicates how to direct project the converse of subtraction. On the second example, K is the midpoint of the unit.

Multiplication and Division



Square, Root and Reciprocal.

N = 2.52631

A = 6.38222

B = 6.38222

C = 6.38222

D = 6.38222

E = 6.38222

F = 6.38222

G = 1.58944

H = 0.39583

N^2-A = 0.00000

N^2-B = 0.00000

N^2-C = 0.00000

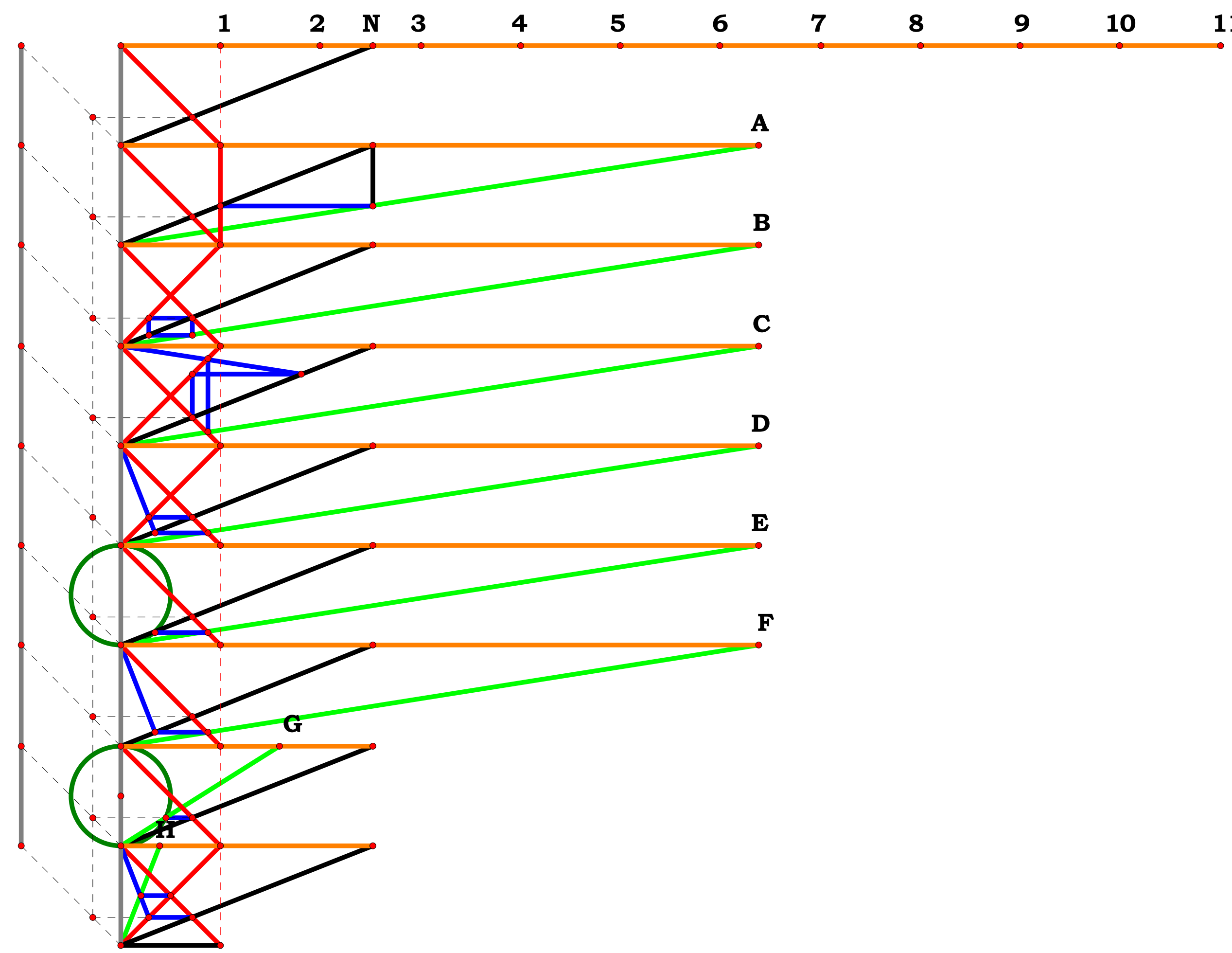
N^2-D = 0.00000

N^2-E = 0.00000

N^2-F = 0.00000

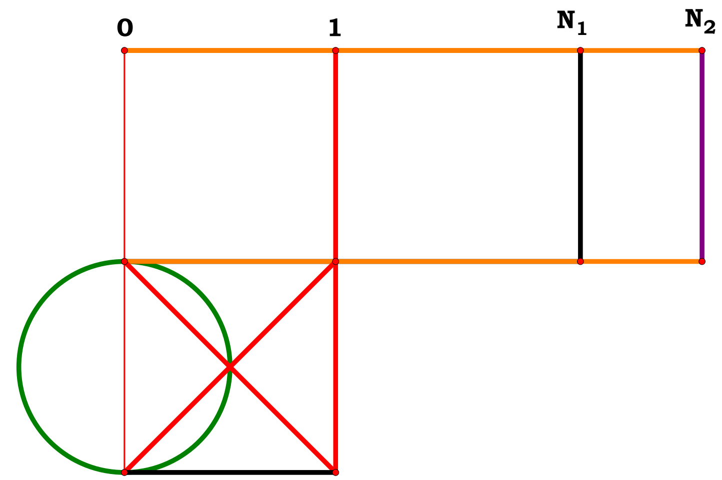
$\sqrt{N}$-G = 0.00000

$\frac{1}{N}$-H = 0.00000

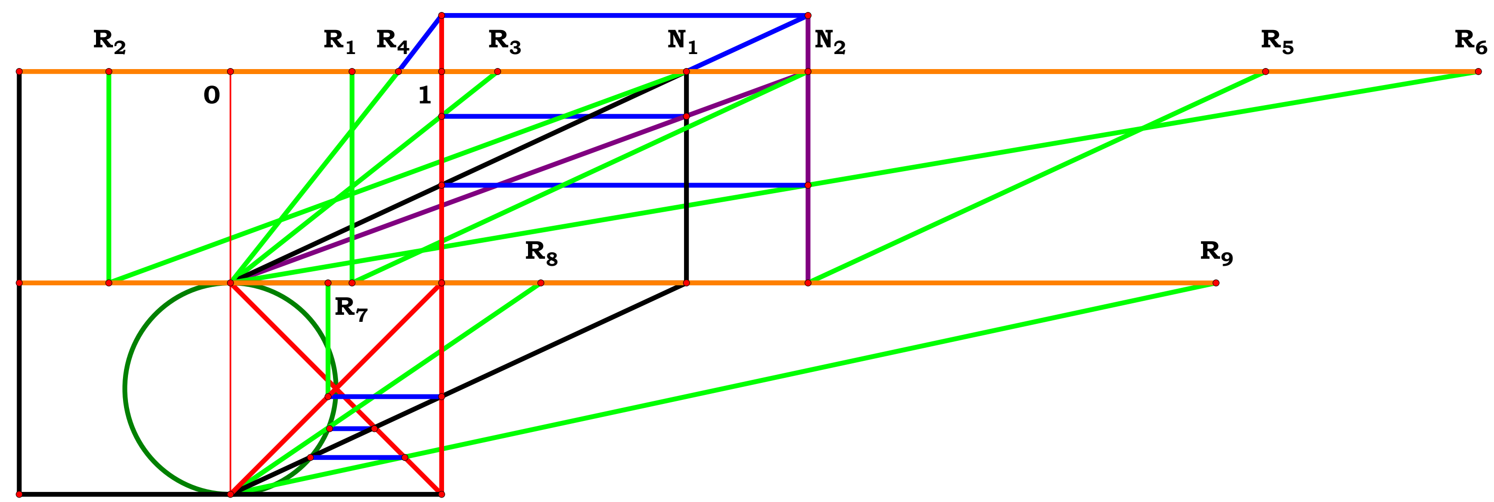


Basic Analog Mathematics.

Let 0 to 1 be the given Unit and N1 and N2 be any two given differences:



With the given analog (figure), it is required to render the products of these two differences using the paradigms sum, differences, and ratio:--



$N_2\text{-}N_1\text{-}R_1 = 0.00000$

$N_1\text{-}N_2\text{-}R_2 = 0.00000$

$(N_1+N_2)\text{-}R_5 = 0.00000$

$\frac{N_2}{N_1}\text{-}R_3 = 0.00000$

$\frac{N_1}{N_2}\text{-}R_4 = 0.00000$

$\frac{1}{N_1}\text{-}R_7 = 0.00000$

$N_1 \cdot N_2\text{-}R_6 = 0.00000$

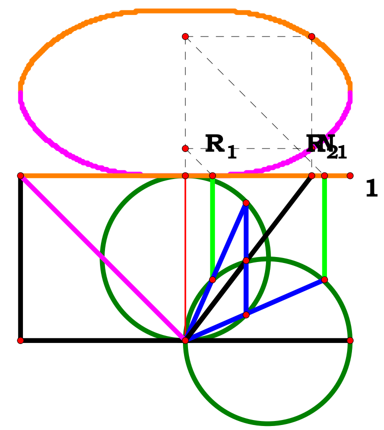
$\sqrt{N_1}\text{-}R_8 = 0.00000$

$N_1{}^2\text{-}R_9 = 0.00000$

It should thus be clear that the so called mathematical paradigms exist *a priori* to Arithmetic and Algebraic Logic, that is--language systems--or in other words, Analogic precedes Logic. Or again, in a metaphor, perception determines conception, conception determines will, or in a more ancient metaphor, The Father, The Son, and the Holy Spirit are One. How can one claim that there are other geometries when every possible form of mathematics is easily demonstrated in one?

3OBT10AR0

3OBT10AR3



$$\frac{(N_1^2+1)-\sqrt{(2\cdot N_1^2+1)-3\cdot N_1^4}}{2\cdot N_1^2+2} = 0.16123$$

$$\frac{N_1^2+1+\sqrt{(2\cdot N_1^2-3\cdot N_1^4)+1}}{2\cdot N_1^2+2} = 0.83877$$

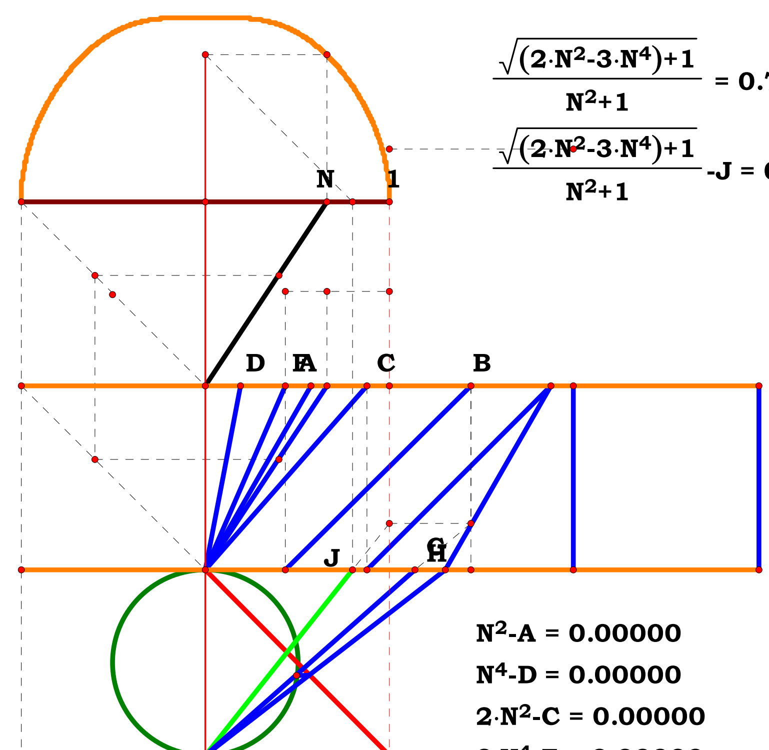
$N_1 = 0.76264$

$R_1 = 0.16123$

$R_2 = 0.83877$

$$\frac{N_1^2+1+\sqrt{(2\cdot N_1^2-3\cdot N_1^4)+1}}{2\cdot N_1^2+2}-\frac{(N_1^2+1)-\sqrt{(2\cdot N_1^2+1)-3\cdot N_1^4}}{2\cdot N_1^2+2} = 0.67755$$

$$\frac{\sqrt{(2\cdot N_1^2-3\cdot N_1^4)+1}}{N_1^2+1} = 0.67755$$



$$\frac{\sqrt{(2\cdot N^2-3\cdot N^4)+1}}{N^2+1} = 0.79409$$

$$\frac{\sqrt{(2\cdot N^2-3\cdot N^4)+1}}{N^2+1}-J = 0.00000$$

$N = 0.66074$

$A = 0.43658$

$B = 1.43658$

$C = 0.87315$

$D = 0.19060$

$F = 0.57180$

$G = 1.30136$

$H = 1.14077$

$J = 0.79409$

$N^2-A = 0.00000$

$N^4-D = 0.00000$

$2\cdot N^2-C = 0.00000$

$3\cdot N^4-F = 0.00000$

$(N^2+1)-B = 0.00000$

$((2\cdot N^2-3\cdot N^4)+1)-G = 0.00000$

$\sqrt{(2\cdot N^2-3\cdot N^4)+1}-H = 0.00000$

Parallel Lines and Angles

Friday, November 6, 2020

If one does not know the principles of language, the unit thing upon which it is based, then one can really go off on a tangent and easily start thinking and preaching complete gibberish. How do we use our unit concept of language to solve questions which seem to be difficult? Not using words, or language, in accordance with definition and just tossing words around not only leads to gibberish, but people demanding that their gibberish is somehow true; this is why one takes the effort to exercise those principles in the mind.

Let ask the question; do parallel lines meet at some place called *infinity*? Or in the simple, if I recursively use the unit to name with, does that unit change depending upon any particular thing, time, or place, it is applied to. Are place, time, or particular thing, use to define a name?

What may be predicated of any thing is wholly dependent upon the definition of that thing, and the naming convention, being based upon form, or no difference, being an indexing system, a mapping systeme, cannot possibly change that thing, or that which the names signify. A one-to-one-correspondence does not add or subtract modifiers, adjectives, from one iteration to the next.

The questions to ask are, if parallel lines meet at some mythical place called "infinity" can one even have the specific language set called mathematics, and more universally, can one have language at all? Is the principle of Identity itself a self-referential fallacy? Does what a thing is, change based upon position which is a relative term? Is the absolute relative? Is a container the contained? If it were, would I ever have to refill my coffee cup? And if a line is composed of an infinite number of points, could I not simply make a salad by waving my knife in the air an

infinite number of times? And, if I had to do that, would I not starve to death before dinner?

What do we mean by a unit? A unit is a standard thing. To claim that the unit can change depending upon where it is relative to some other thing, is to claim that the relative difference between terms can be predicated of one of the terms. By the principles of predication, is that true? Can one predicate of an element?

Let us take a simple object:

Let us choose another object by which to name some portion of this object.

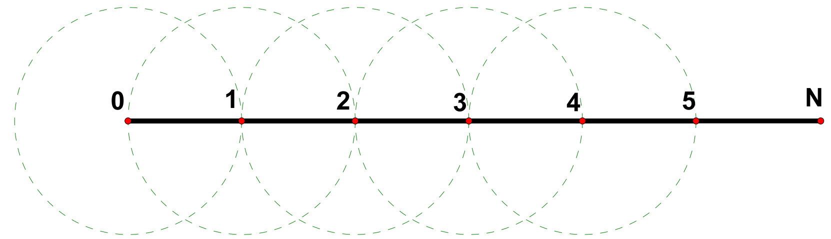
Let us recursively apply our standard unit to arrive at a name which is called five of our unit.

Now, does a unit differ from itself? Is the unit, expressed by the names 01, different from the unit, which may be called 45?

In order to say that they differ, I would have to say that an element of a thing can be predicated of a thing. Can it be said that a single dimensional thing exists in space? Is space qua space a thing? Can it be said that a linear single dimensional thing exists in a three-dimensional thing?

If one answers *yes* to certain questions, then it is obvious that one does not understand the principles of language, much less the principles of predication. When speaking of any thing, we often take many short-cuts in language, but we cannot assert that those short-cuts are spoken in accordance with the principles of language itself.

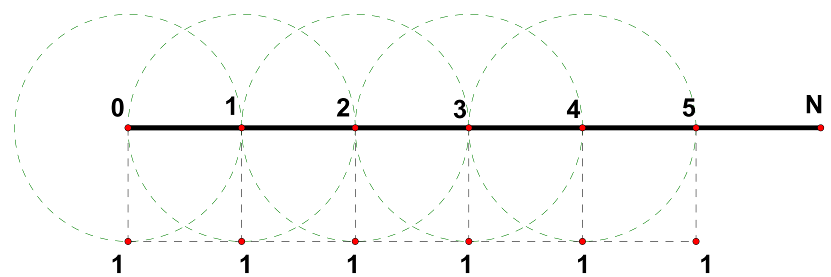
Let us make our thing, more obvious, say a circle.



Let us call our original thing 0N. And let us say that I wanted to subtract from it 5 equal things. I can call those things 01, 12, 23, 34, 45, or I can say that they are 1, 2, 3, 4, 5. The remainder is 5N.

Now, does the unit change due to its sequential place in usage? If it does, then we cannot claim to have an arithmetic convention of names.

Let us look at this again.



If the unit does not change, and by the principles of predication it cannot possibly change, then no matter how many times it is applied, it will always be a unit. This is one of the meanings of *Complete Induction.* A naming convention is based upon the paradigm of form, meaning no possible difference.

One will notice one similarity in conceptual error, one is making the claim that parallels meet at some mythical place called "infinity" amounts to claiming that a line is composed of an infinite number of points; one can substitute for line, the names plane and space.

Now here is a point to consider. Is the substantive name *infinity* a *perceptible* thing, or an *intelligible*?

Both branches of language, Logic and Analogic, is founded upon the recursion of a standard thing. A mind, just like every life support system

of a living organism is based upon the ability to craft things, thing is a standard. Without this standard concept, language cannot exist, life cannot exist, and quite frankly, nothing could exist. When one constructs a so called proof that contradicts the original naming convention, it is a fact, that the construction itself does not comply with language.

I cannot predicate a spatial difference to or of a single dimensional object. The single dimensional object does not exist in space, nor does it exist on the surface of a sphere. The boundaries of every N-dimensional object is always an (N-1)-dimensional thing. As a boundary, it is an element and cannot be predicated of. We step through dimensional constructions on an intelligible level, but we always have to be careful as to how we think during that progression.

Ask this question: if Time is the fourth dimension, does anything exist in time? A, either every thing is composed of more dimensions than 3, or a three dimensional geometry only constructs the boundaries of 3 dimensional objects. Everything exists within the moment, the now, which is a boundary in time. One can count dimensional differences for a given material from which assertions and denials of boundaries can be effected, one cannot simply toss in a number and predicate a material difference.

If I claim that time is linear, i.e. a single dimensional different, can a three-dimensional object exist in time? Or can a material difference be predicated of a material difference?

Plato demonstrated the mental exercises required for basic understanding of the *Principles of Predication* in *Parmenides*, but do not make the mistake that he demonstrated the complicated examples. He did warn the reader that he was presenting a model and an easy very of the exercise, and even so, a long history of critics amounted to saying that they were baffled.

We are given certain materials within things to craft with. Logics are simply naming conventions, indexing systems, mapping systems. As such, it is wholly descriptive. Prescriptions are a sub-set of descriptions, always.

A thing is wholly dependent upon the definition of that thing, and the naming convention, being based upon form, or no difference, being an indexing system, cannot possibly change that thing, or that which the names signify.

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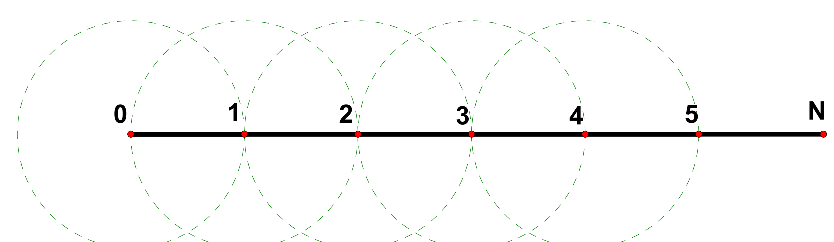

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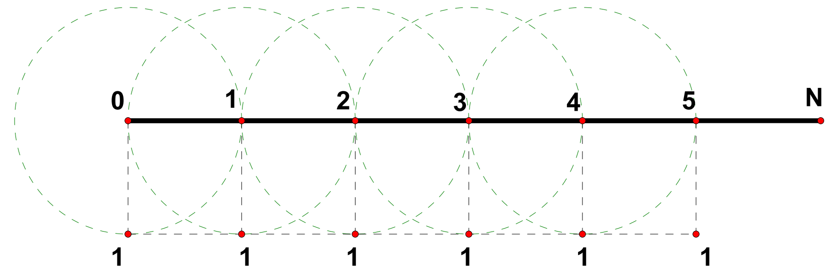

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When the statement is made, and when one thinks about it, that what may or may not be predicated of anything is wholly determined by the definition of that thing, we then compare two things. A one dimensional object and a two dimensional object. Two dimensions is not part of the definition of a one dimensional object, and thus, it cannot be even said to exist in terms of two-dimensions. In two dimensions it can be used as a boundary, but not as a thing. In working with planes, between any two lines, there is one and only one difference. That difference can be expressed Arithmetically, or proportionally, i.e., a single difference used recursively, or a proportion used recursively. One produces what are called parallel lines, and the other what is called converging or diverging lines, (unless that ratio is 1 to 1) but they are still boundaries to a plane

figure and as boundaries, they are elements of a plane figure and not things *of* two-dimensions. We often use *in*, when we should use *of*.

When we are naming, in reference to an *N*-dimensional object, we must name using an (*N*-1)-dimensional thing as a standard for naming the elements of that thing. This (*N*-1)-dimensional thing as an element of an *N*-dimensional thing, is not defined as a thing in *N*-dimensions and therefore, it can neither add to, nor subtract from that thing. This fact can be used for understanding the naming convention in reference to complex concepts by stepping back to what was once called a things *first principles* or the least abstraction possible, being *two simple elements of a single difference*. When we have arrived at the unit concept of a thing, of one and only one difference or dimension, then we use the same concept, when N = 1, then the standard names = 0, or not a thing at all.

The Unit and Complete Induction.

Friday, November 6, 2020

There are two, and only two, methods of constructing the unit, or in other words apply recursion, in regard to a given thing, by induction and deduction.

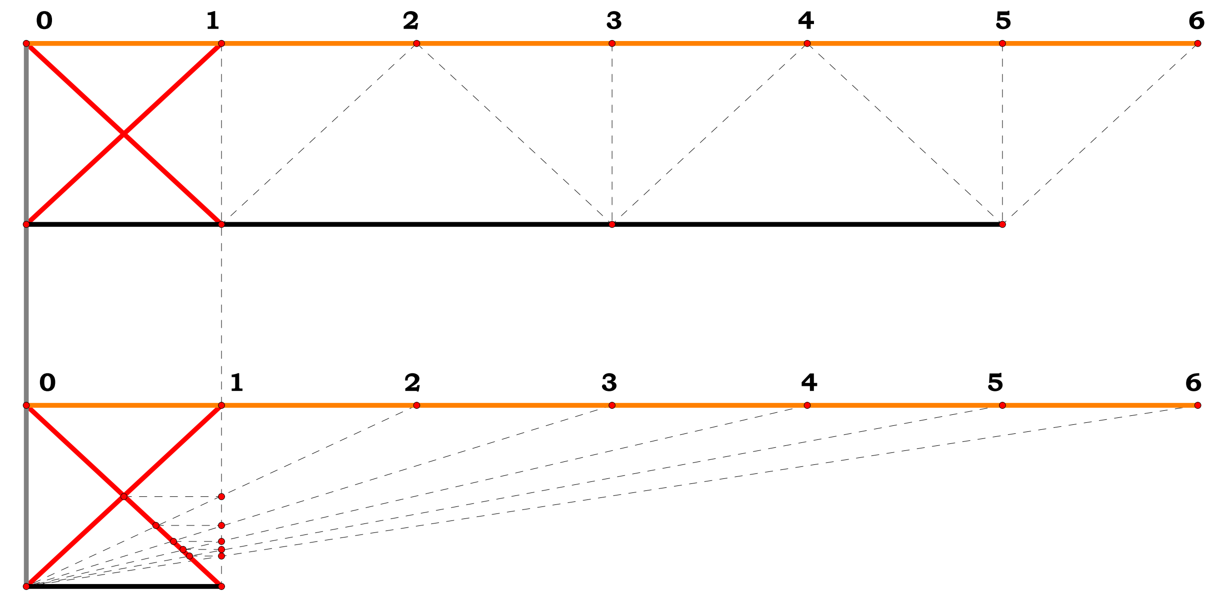
What do I mean by induction? In induction, the unit is a given and the thing to be named is supplied. This means that I simply use my unit to recursively induct the material of a thing into a class established by our given unit. This will not always produce a name by that method, i.e., the results could be called irrational, or unnamable by the given convention.

Deduction, on the other hand, starts with a given thing and that thing is divided recursively, until one simply desires to leave off. Any material difference can be divided any number of times. Where one leaves off determines what the unit is for that thing. The drawback of this is that a unit determined in accordance with one thing, is not always commensurate with a unit determined by something else.

Both methods, therefore, does not always construct a name in accordance with a convention of names based upon a standard material difference of a thing.

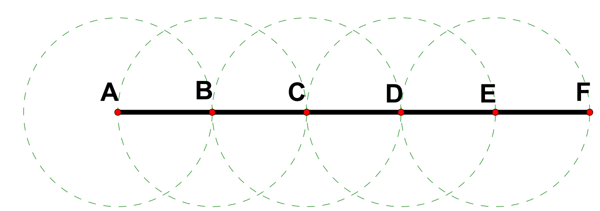
Analogic has material difference as a given, and the form must be applied. The application of form to a material difference does not change that material difference. One of the things that this means is that one can construct either form of naming convention in analogic, Arithmetic or Geometric. Therefore, Analogic can do what logic cannot in terms of precision, it is always exact in its products.

Let me example two methods of constructing a numbered line geometrically. One by an Arithmetic method, and again by a Geometric Method. Each will produce a recursive unit.



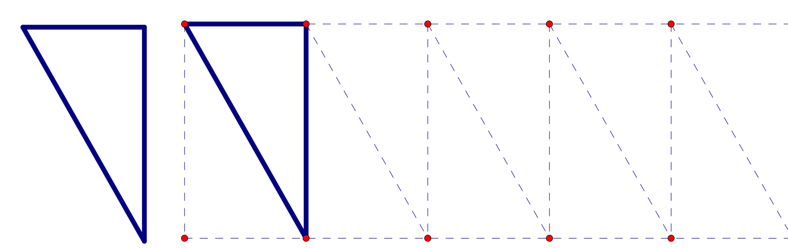
I can start with a given unit, and reproduce it recursively and thus produce a numbered line

Arithmetically:—



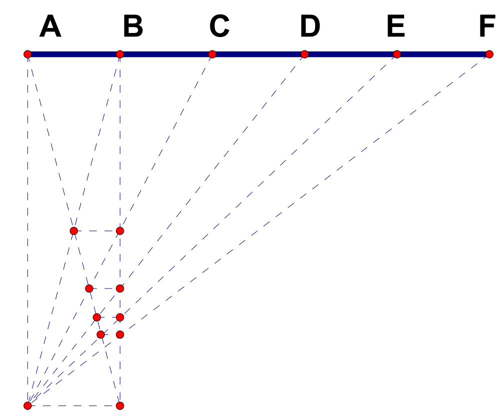
That is one method.

I am not confined by using the figure of a circle, I could use a triangle.



Etc.,

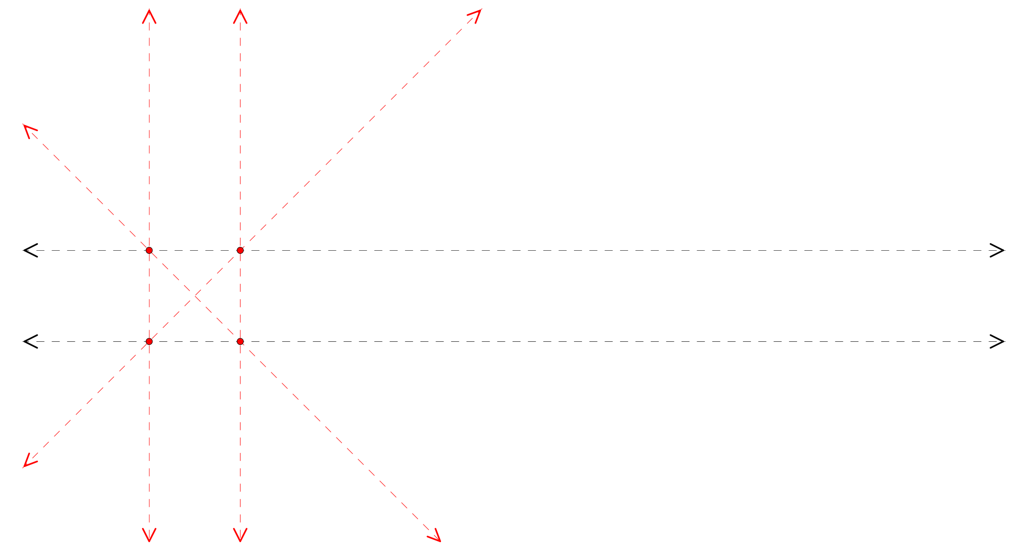
I can also take the unit, and multiply it proportionally.



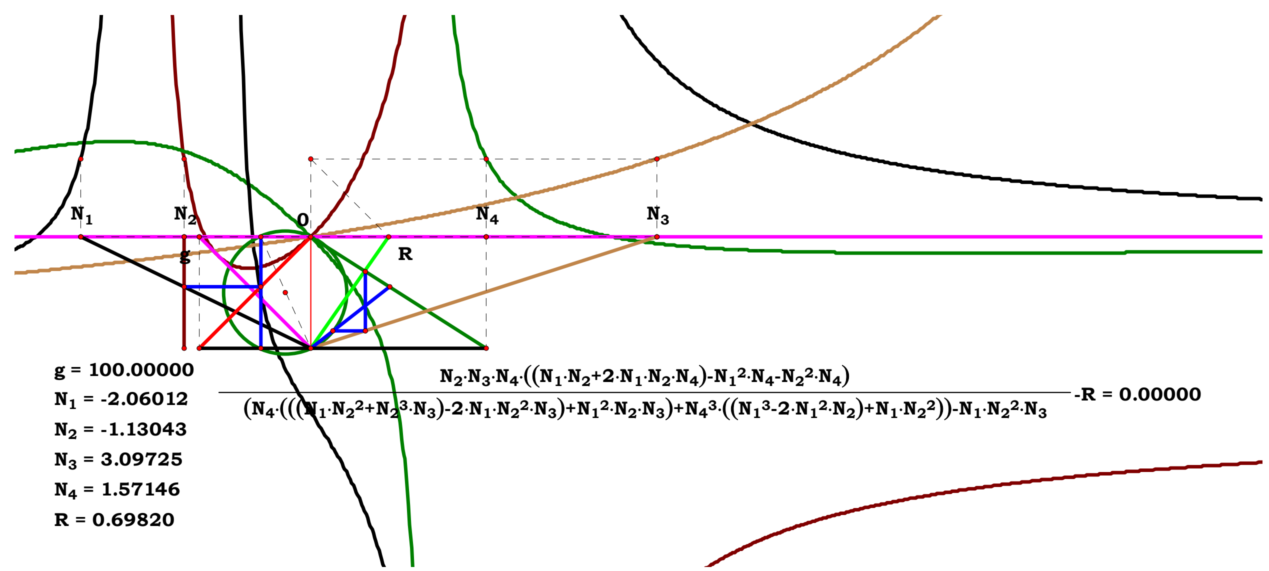
In this second example, one has a whole lot of *as so and so is to so and so*, so too *is so and so equal to so and so*. One may come to realize that even if we use the simple method, what is implied is a proportional application of a unit concept.

There are, naturally, many ways of producing any number of divisions within a given difference. When we are looking for arithmetic equalities in geometry, it is well to remember that we are actually seeking a proportional application of a unit concept. We always must construct that unit by which to actually see these relationships. In other words, it is just like simple arithmetic, the unit has to be defined first. Once that is done, one can then move to algebraic concepts of variables which are independent of any given unit but must still at least have a defined and particular unit in order to use those equations by a system using that unit.

The standard unit in the universal is given in BAM as:—



With this standard unit, one can construct not only all of the basic operations of mathematics, but equations as complex as they desire and project from the figure itself the curves of that equation in real time.

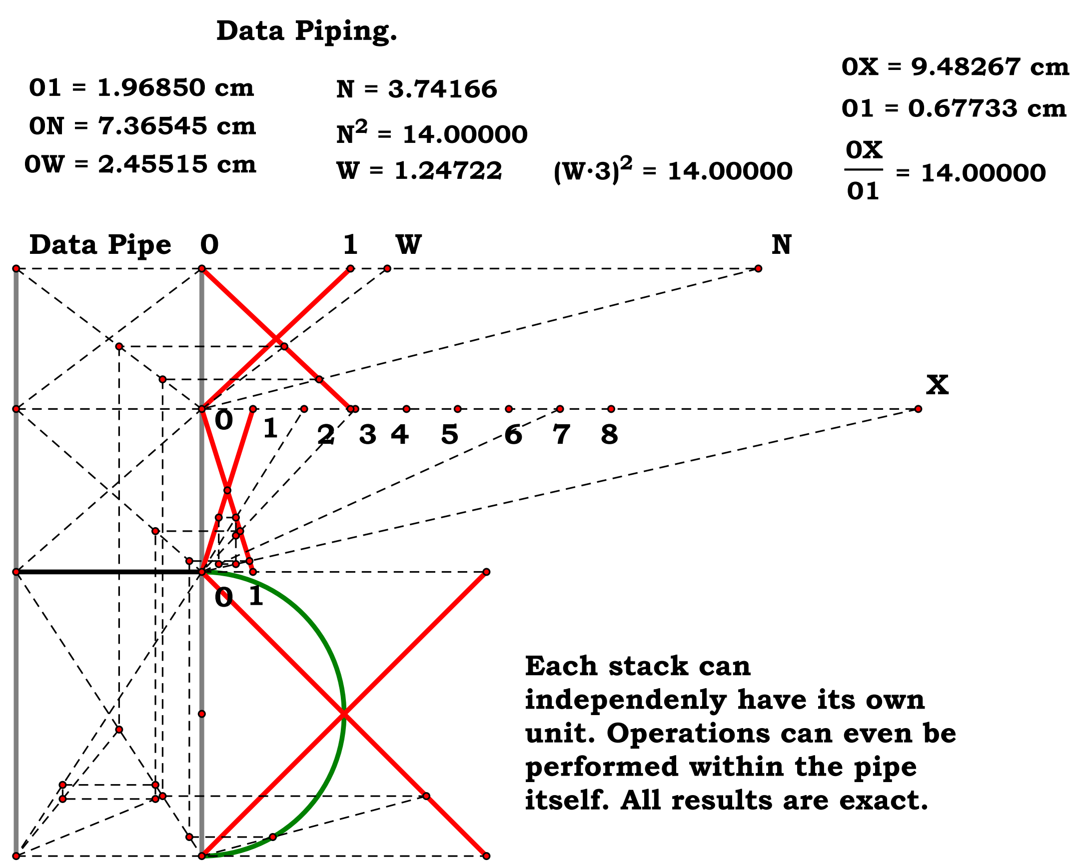


In the dictionary work called AUL, *A Universal Language*, I have compile hundreds of figures as both an exploratory exercise and a dictionary of figures.

Notice that there is no Trigonometry, there is no Calculus and there is no Cartesian Coordinate system. Each equation is given solely in terms of the givens.

Those who claim that the equations of physics is dependent upon coordinate systems, I place before them the counter example to their untruth. All of logic and analogic are derived from a simple thing. One will also notice that in this construction, not only are the variables free to change, but a part of the computational machinery uses a circle which also changes in position, but it is not expressed as part of the answer. I use up to six different motions in the AUL catalog, which has been under construction for a number of years now. The is performing a complex mathematical operation as a single object.

One can even use data piping between individual computational systems.



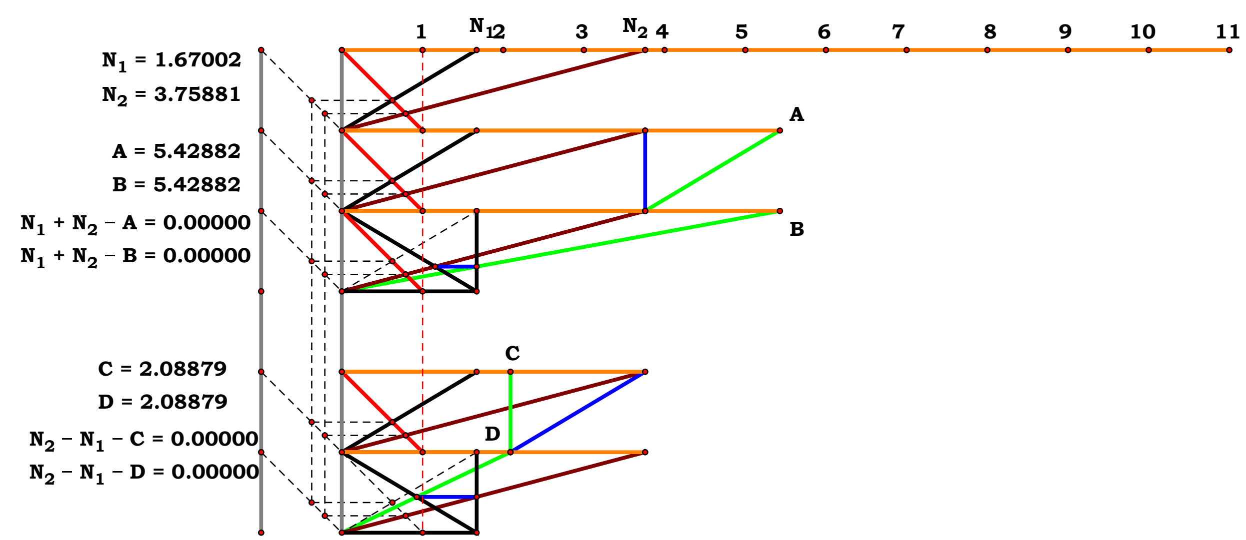
All of this can be done with a simple straight edge and compass.

For the present, the presentation will example many ways of doing the basic operations of mathematics.

Hopefully, I might go all the way to fractional and geometric series.

It is by comprehending and utilizing the unit concept, in both of its expressions, that one can conceive of, and demonstrate computational systems to any complexity one has the patience for. The following example some of the figures which will be explored in this introductory work. The same operations can be perform, or indicated, just like in logic, a number of given ways. It might be, that no matter how many I demonstrate, I will not include them all.

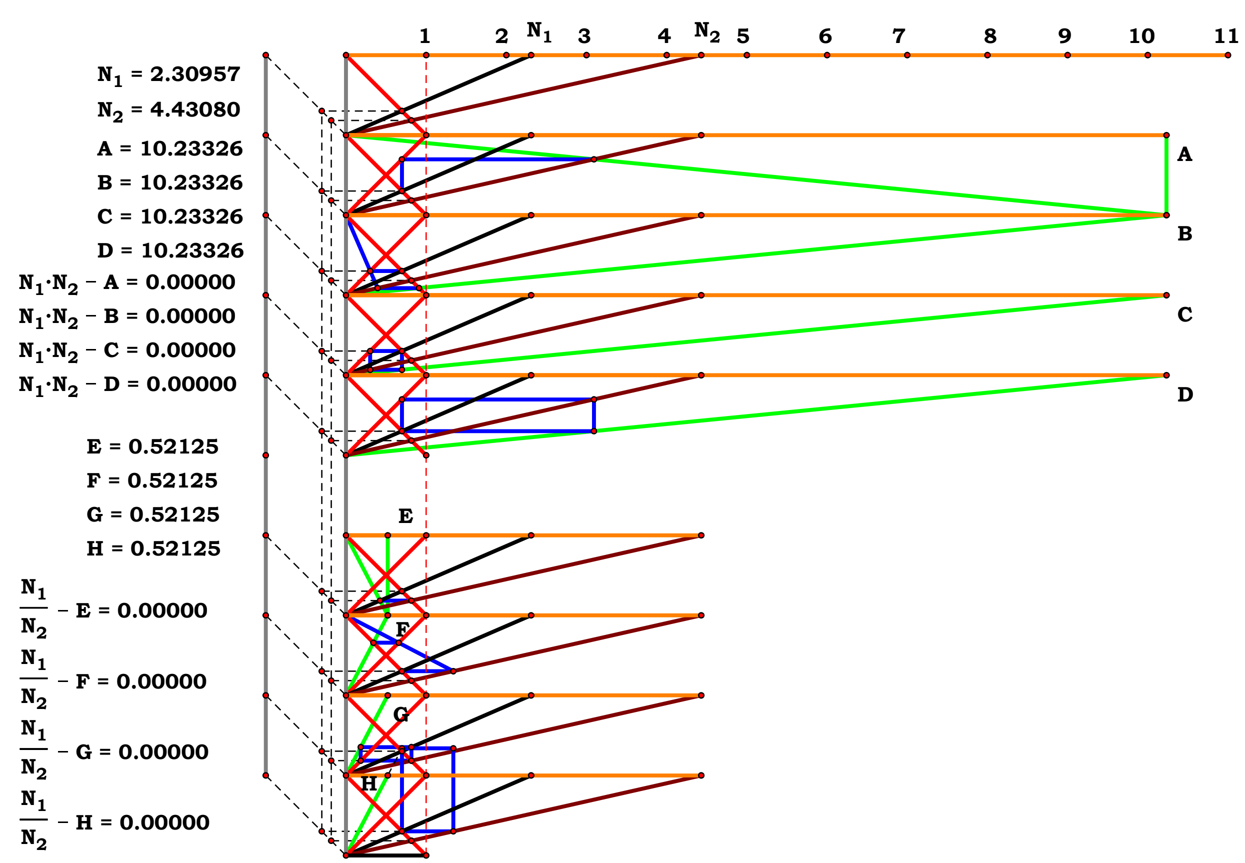
Addition and Subtraction.



Once upon a time, someone who knew me, but whom I did not know, came up to me at work and handed me a problem one of his children was given to solve that a teacher of Trigonometry gave to the class to solve. I quickly solved it using plain Geometry. I was informed by the man that my answer could not be correct, as it was a trig problem. A few days later, I was approached by the same person with an apology as he found out from the instructor that the answer was indeed correct.

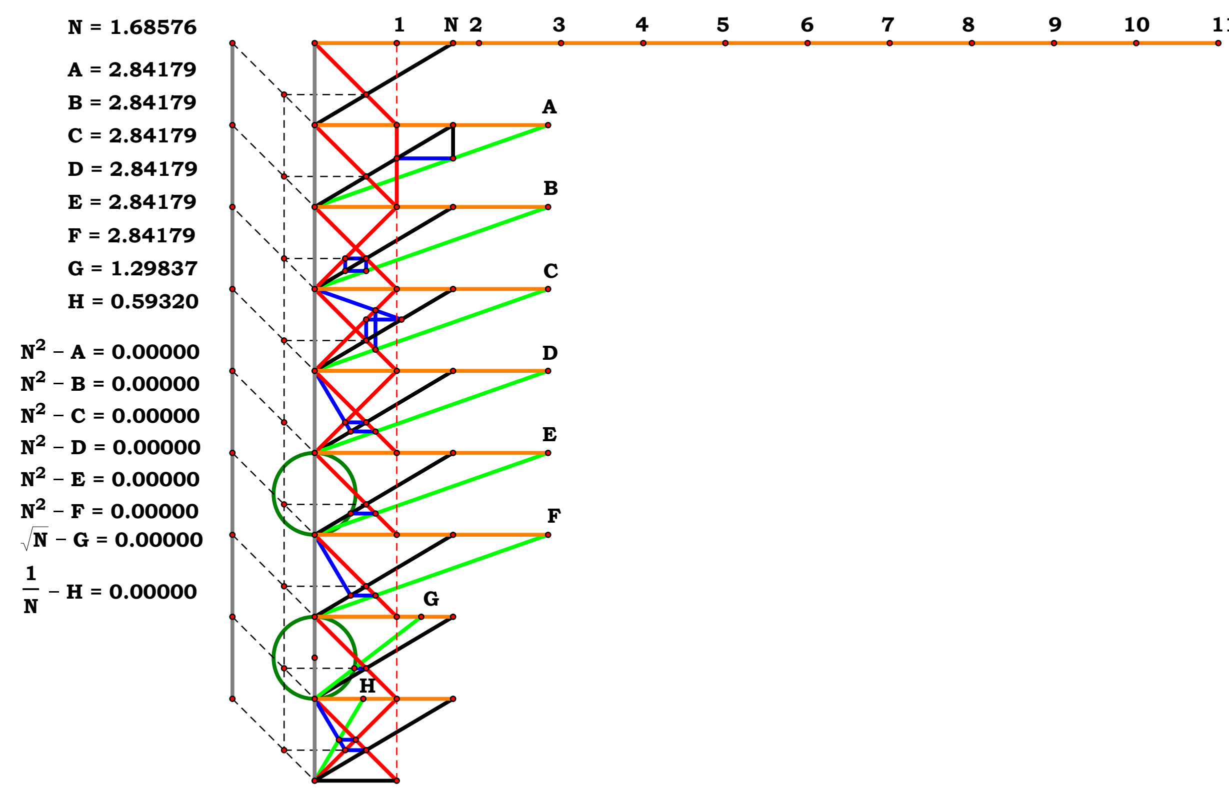
The word *angle* represents an implied ratio. As such, there is no trig problem that cannot be solved with simple algebra by simply determining that ratio. Angle is factually not a thing in geometry. In order to learn the equations for the sides of any triangle, one can reference my work called *The Delian Quest*. Early in my studies of Geometry, I figured out that I had to view the Pythagorean Theorem as a particular case of a more universal theorem, which I had to rediscover for myself for I later found that the figure could be found in older works. It seems, however, to have been under utilized and under stressed. Anyone of intelligence does not hold up a particular example as a standard. Touting the Pythagorean Theorem as a standard is just bad Geometry. We always start with particulars as a path to the Universal. It was not done in that case.

Multiplication and Division



One can look at these examples as examples of unit methods of performing a given operation. I present here ready made examples I did some time ago, but they are not inclusive of all possible methods.

Square, Root and Reciprocal.

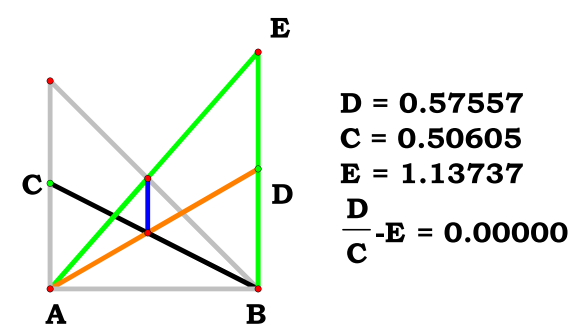


Two Triangles

Friday, November 6, 2020

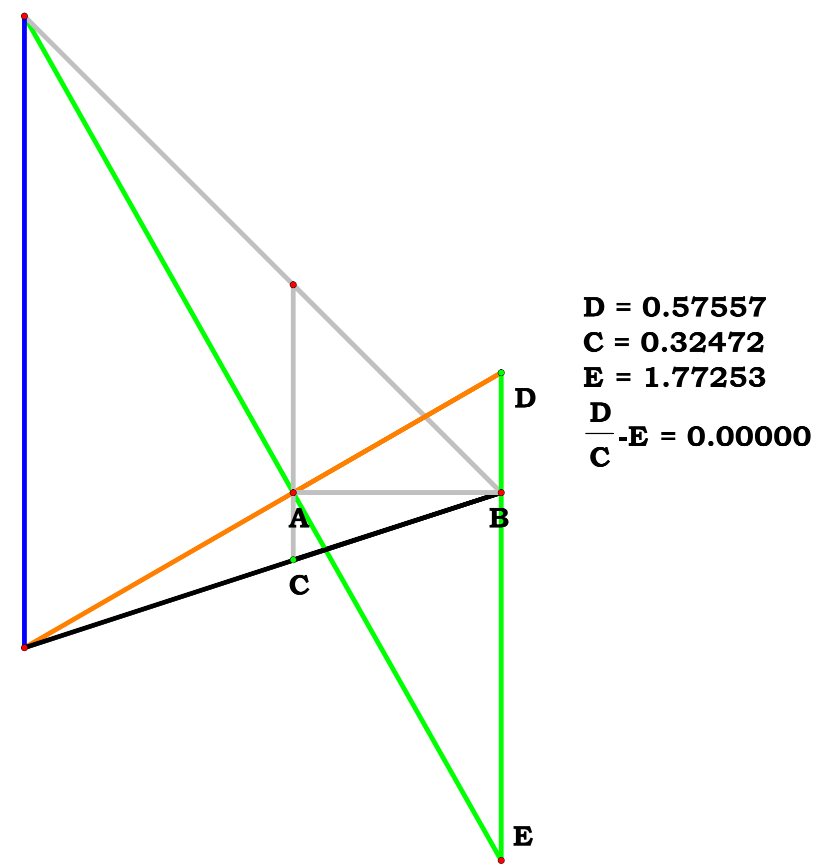
Just the first book or two of Euclid's *Elements* should give one enough information to discover *Basic Analog Mathematics*. However, it apparently did not happen. The reason being is that it is a whole lot easier to repeat and memorize perceptible information than to see the intelligible being expressed which can be attributed to evolution of the mind.

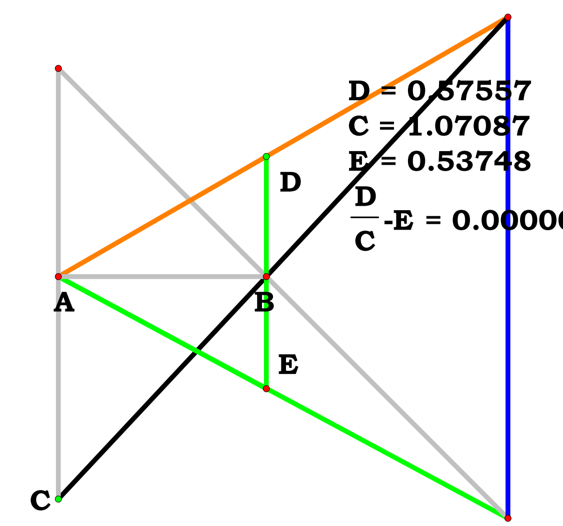
In this little essay, I am not going to say much, I am just going to present a little figure which I call Two Triangles. Just imagine what you can do with two right angles on the same base. I can call one ACB and the other ADB. I will simply present a series of plates which only differ in so far as a point go.

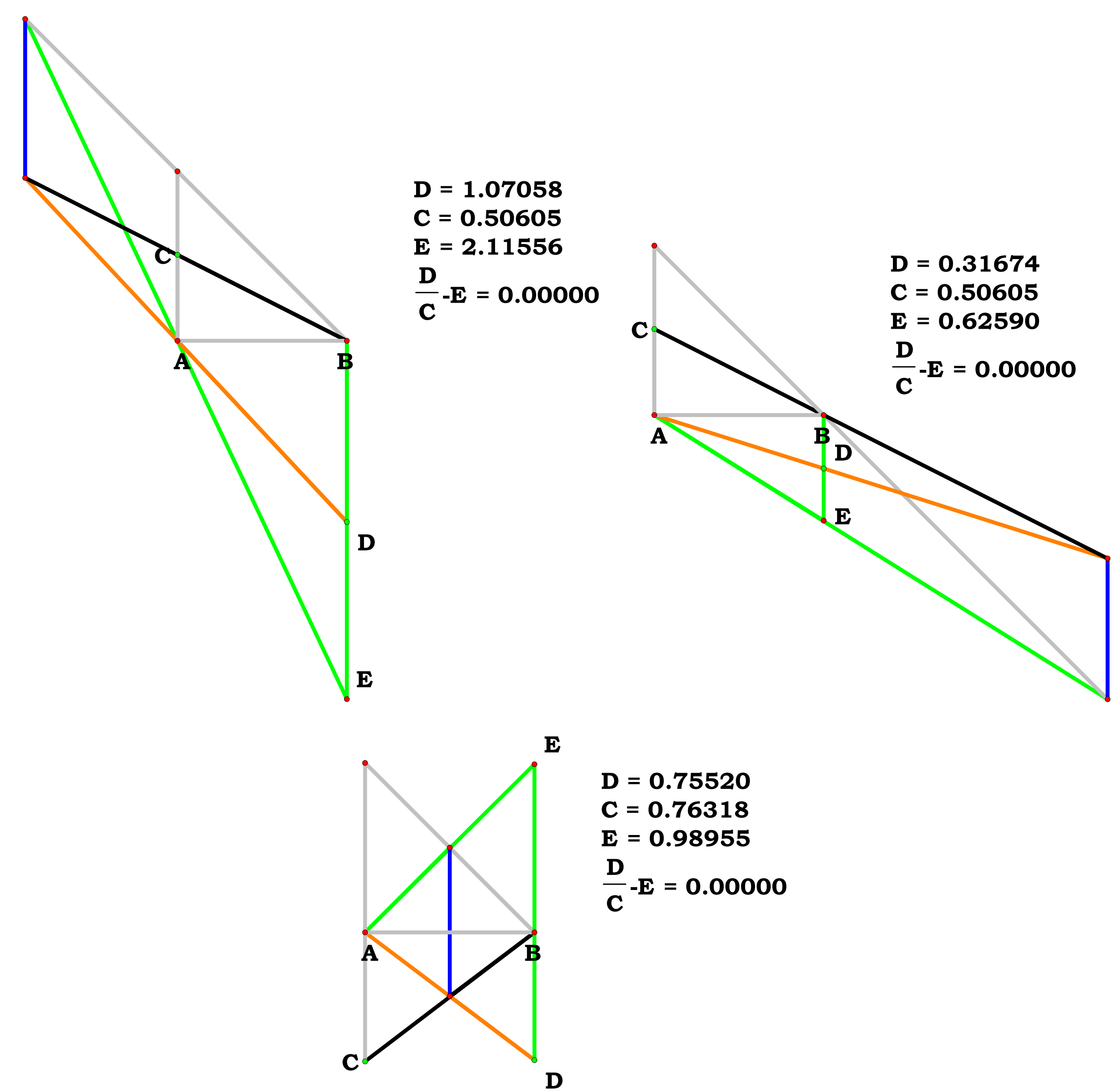


Let us call AB the standard unit by which C and D and their product E is named. We simply have a right triangle to perform our operation. Call it AB. The intersection of the two triangles perpendicular to the base AB fall on what we can call the segment known to be the square root of 2. We are not, however, interested where it intersects the segment, but only that it intersects the line which contains the segment. We are interested in it only insofar as it expresses and projects a ratio.

Now, we can give C and D any values we like. We can imagine them as triangles ACB and ADB, however, we have no wish to think or speak in terms of the mystical angle. We adhere to the notion that a two-dimensional plane is expressible as a ratio between two units.


D = 0.57557
C = 0.32472
E = 1.77253
$\frac{D}{C}$-E = 0.00000
D
A
B
C
E


D = 0.57557
C = 1.07087
E = 0.53748
$\frac{D}{C}$-E = 0.00000
D
A
B
E
C



One of the things which BAM helps one with, or one of the things Geometry helps one with, is not to set the standard of understanding a figure based on the perceptible, which can be very confusing, but on the intelligible content established by standards. The standard references what is intersected while the mind is looking at where.

One may notice, even in the *Elements* as we have them today, propositions written up by a weaker mind writes up the same proposition in terms of cases based on perceptible location. One can see here, if they were done correctly, the equation never changes. Notice also that any and every other type of triangle can be found using in the figure. I am not interested in obtuse, acute, or any other name one can give to any other expression of a triangle. I am only interested in the fact that a two-dimensional matrix can produce results using an unit whatsoever when compared to another and I do not need Cartesian Geometry, Trigonometry, or Calculus to do it.

The ability to equate an analog to its logical name is not, in any wise apparent to the eye. One has to find and use standards to express it, and comprehend it in the mind. You can call an analog an isosceles right triangle in gray, or a method of dividing two given things of the same relative difference in accordance with a standard unit. All of the other so called triangles are simply parts of a much bigger and better ordered universe.

Let us take our little figure, lay it on its side and imagine that C and D are on two parallels and AB is just a unit; when one does that then they can start examining BAM (Basic Analog Mathematics).

Addition

$R_0 = 5.91077$

$(N_1+N_2)-R_0 = 0.00000$

$R_1 = 5.91077$

$(N_1+N_2)-R_1 = 0.00000$

$R_2 = 5.91077$

$(N_1+N_2)-R_2 = 0.00000$

$R_3 = 5.91077$

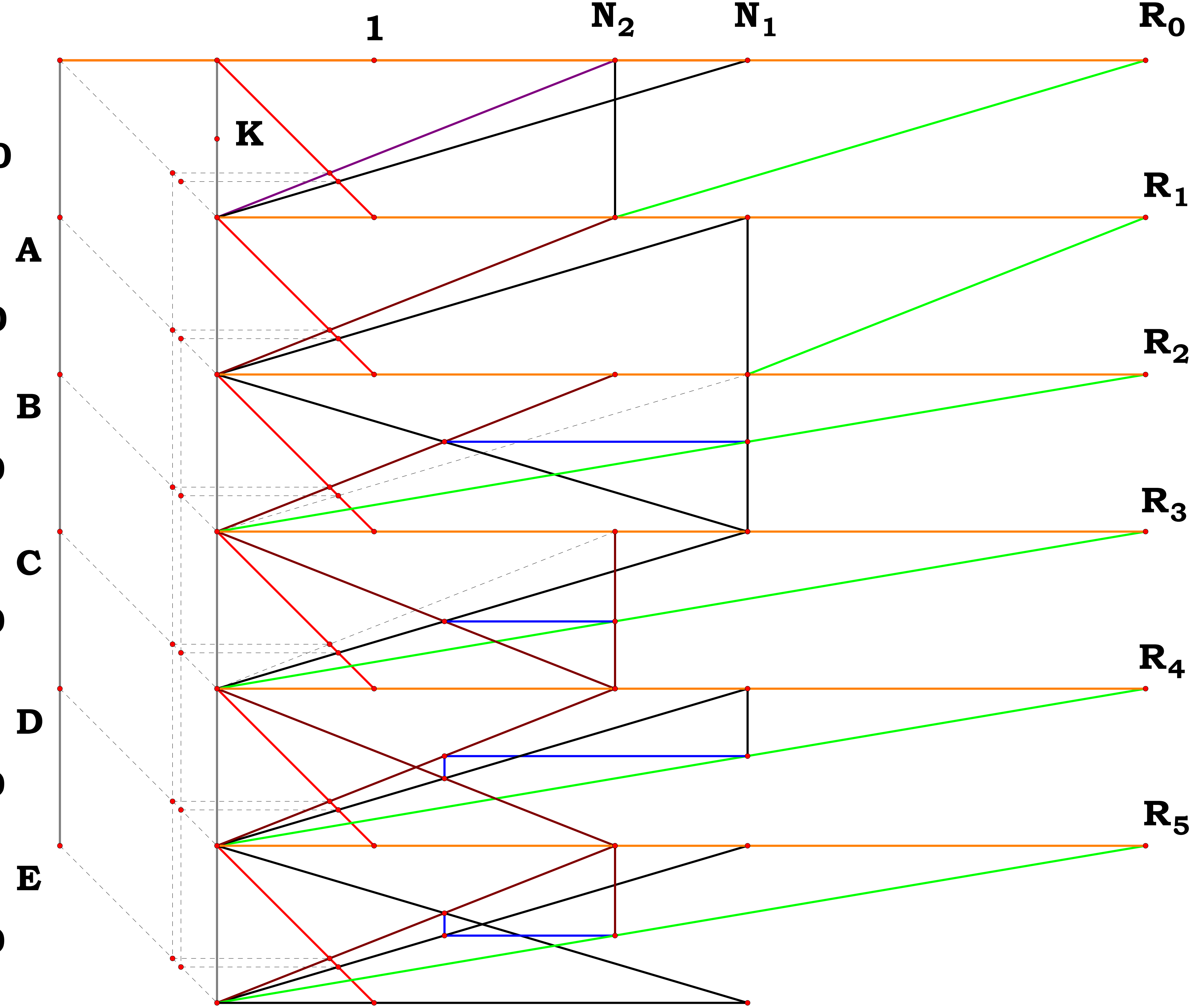
$(N_1+N_2)-R_3 = 0.00000$

$R_4 = 5.91077$

$(N_1+N_2)-R_4 = 0.00000$

$R_5 = 5.91077$

$(N_1+N_2)-R_5 = 0.00000$

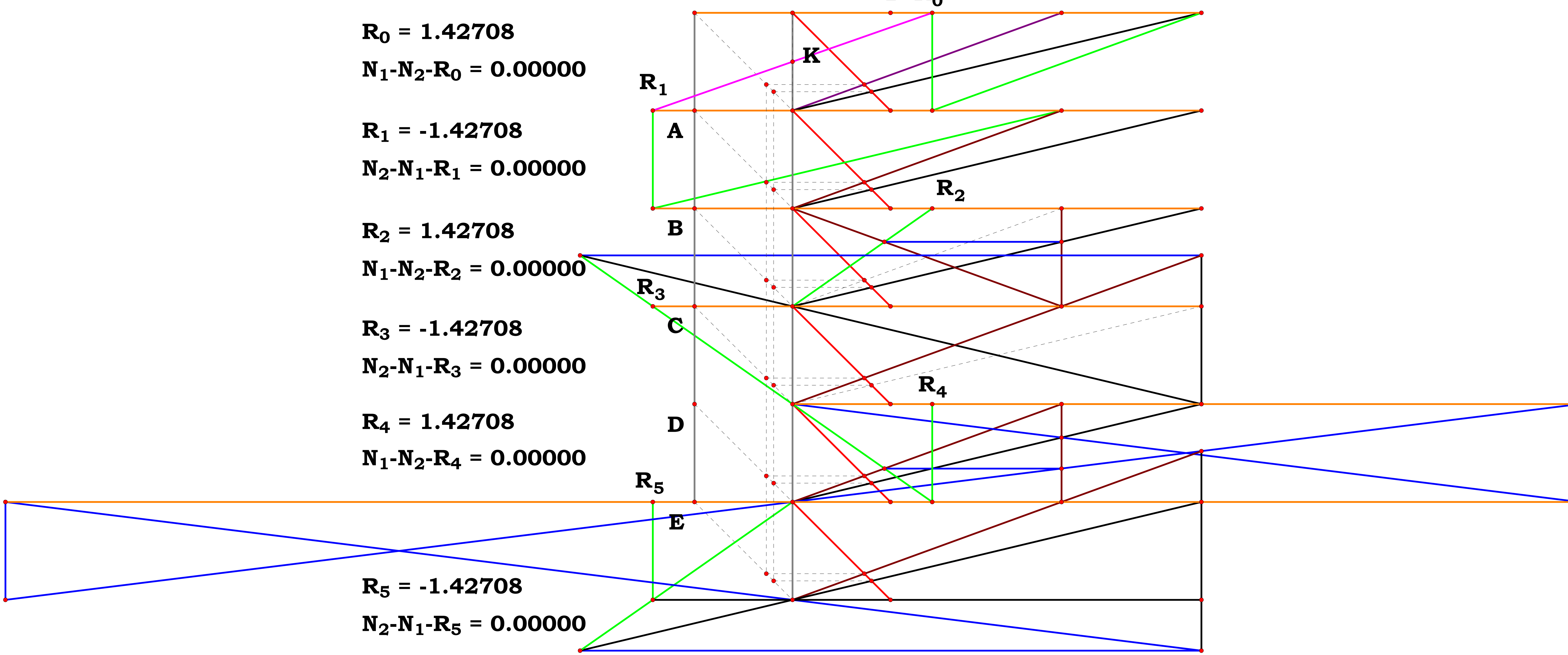


Note: Point K can be used for projecting the converse, i.e. the converse of the operation, not the converse of the number.

$N_1 = 3.37709$

$N_2 = 2.53368$

Subtraction



Note: The purple line indicates how to direct project the converse of subtraction. On the second example, K is the midpoint of the unit.

$N_1 = 4.17431$

$N_2 = 2.74723$

Multiplication and Division

$N_1 = 2.30957$

$N_2 = 4.43080$

$A = 10.23326$

$B = 10.23326$

$C = 10.23326$

$D = 10.23326$

$N_1 \cdot N_2 - A = 0.00000$

$N_1 \cdot N_2 - B = 0.00000$

$N_1 \cdot N_2 - C = 0.00000$

$N_1 \cdot N_2 - D = 0.00000$

$E = 0.52125$

$F = 0.52125$

$G = 0.52125$

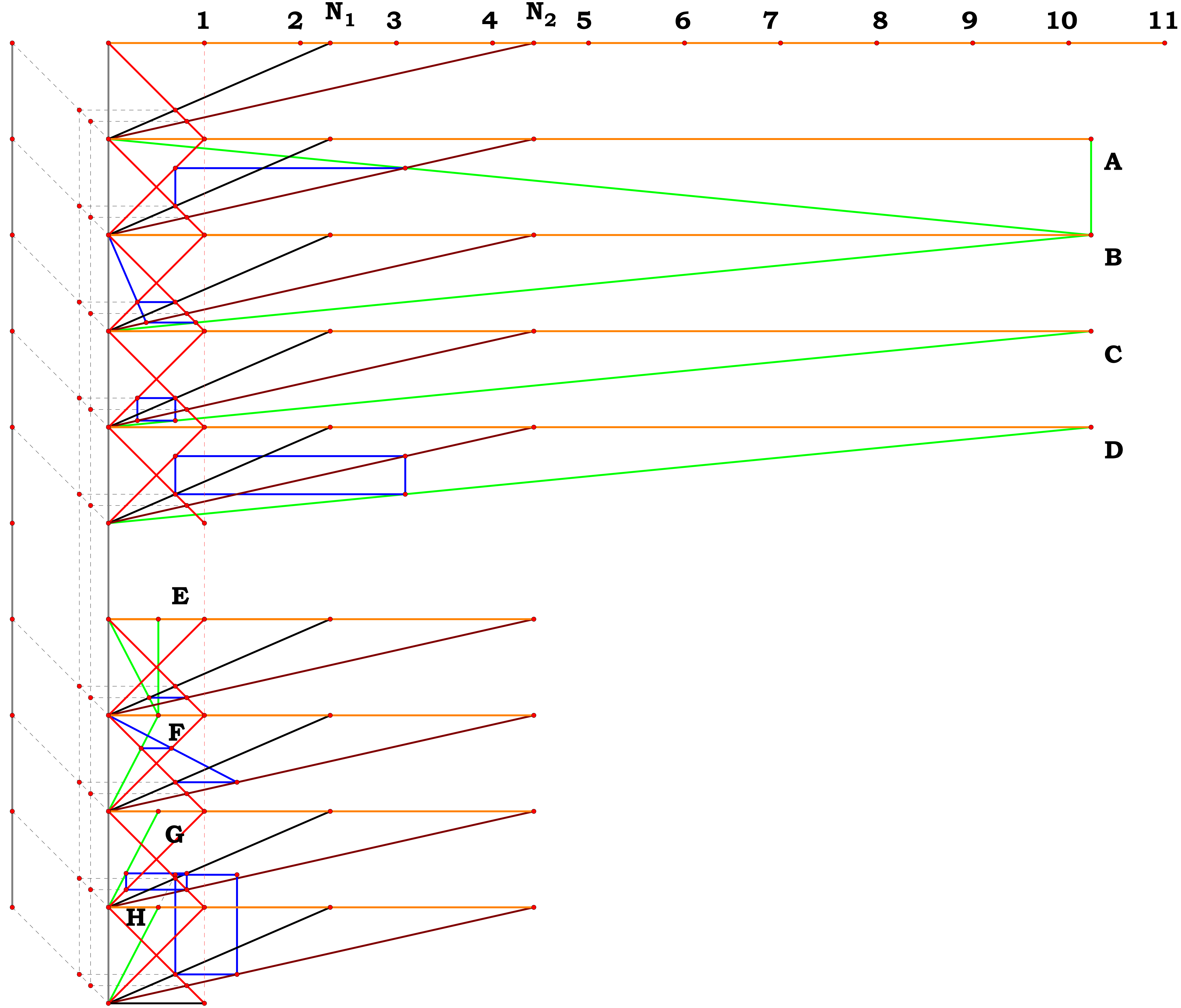
$H = 0.52125$

$\frac{N_1}{N_2} - E = 0.00000$

$\frac{N_1}{N_2} - F = 0.00000$

$\frac{N_1}{N_2} - G = 0.00000$

$\frac{N_1}{N_2} - H = 0.00000$

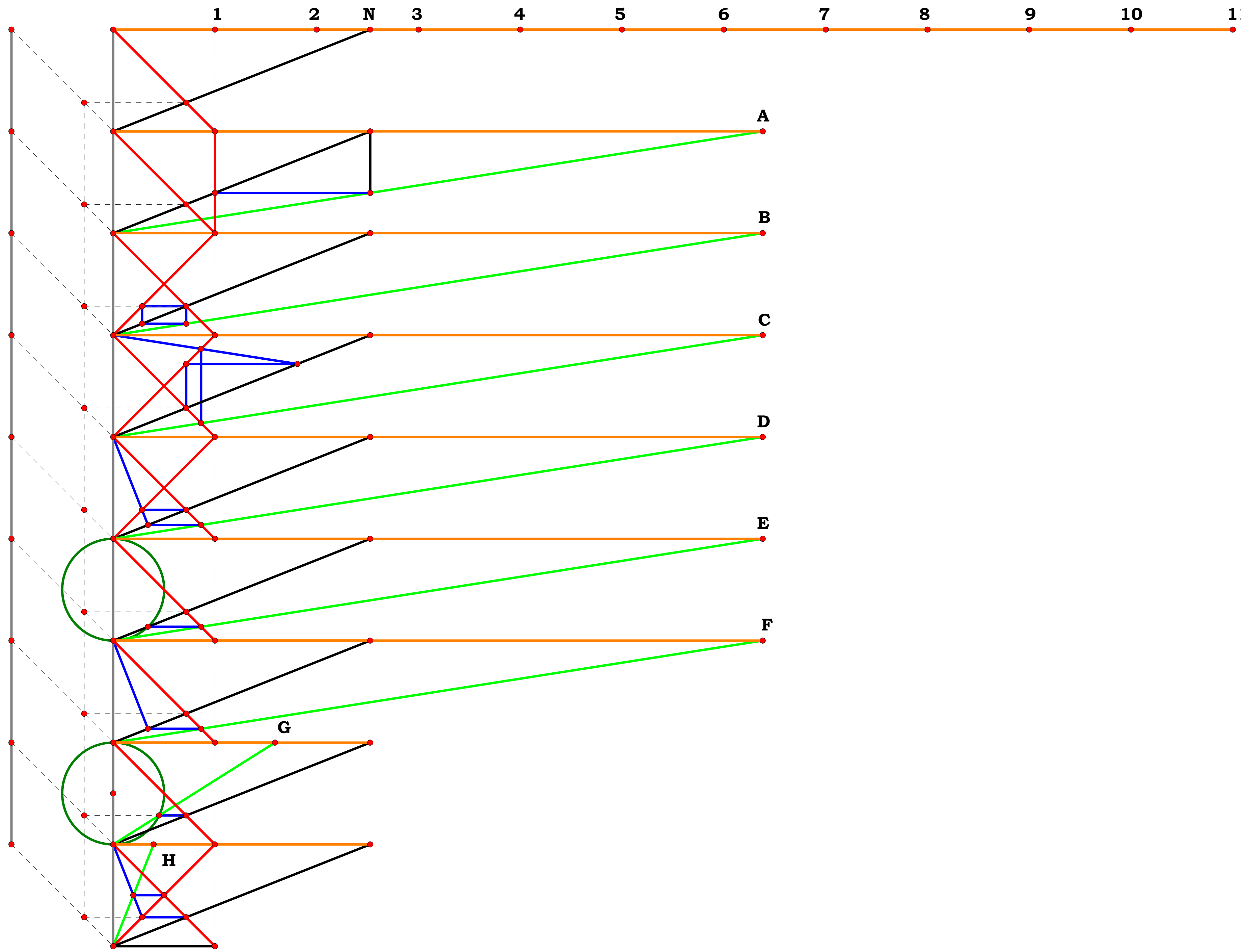


Square, Root and Reciprocal.

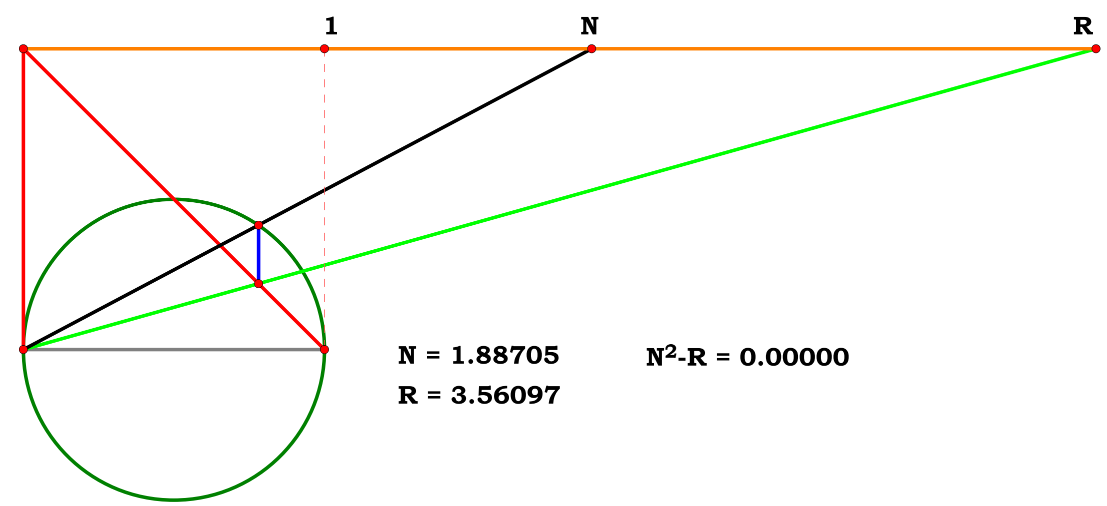
N = 2.52631

A = 6.38222
B = 6.38222
C = 6.38222
D = 6.38222
E = 6.38222
F = 6.38222
G = 1.58944
H = 0.39583

N^2-A = 0.00000
N^2-B = 0.00000
N^2-C = 0.00000
N^2-D = 0.00000
N^2-E = 0.00000
N^2-F = 0.00000
$\sqrt{N}$-G = 0.00000
$\frac{1}{N}$-H = 0.00000



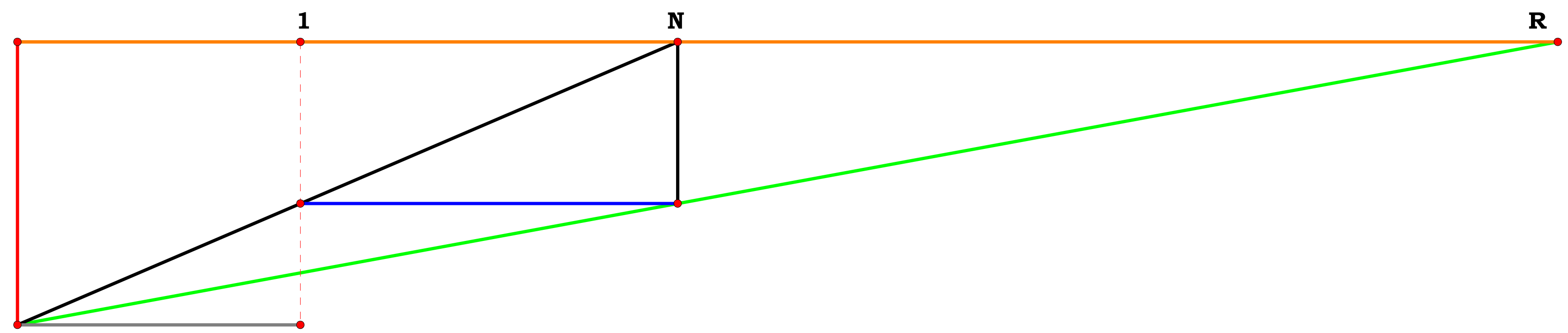
3OBT3R12



N = 1.88705
R = 3.56097

N^2-R = 0.00000

1CST1R7

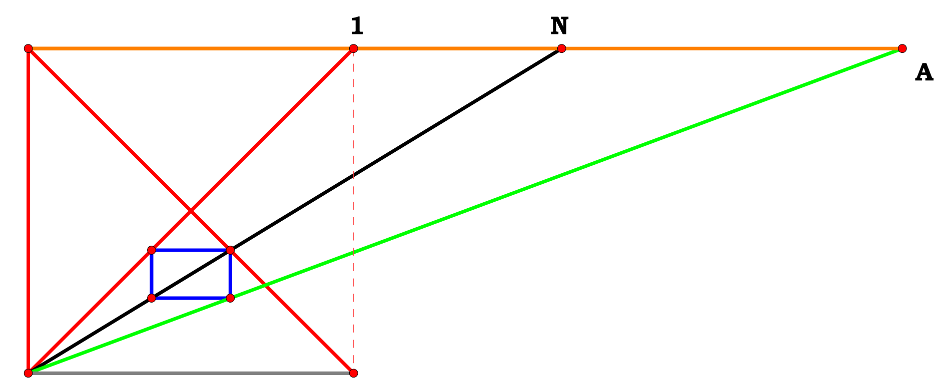


N = 2.33308

R = 5.44326

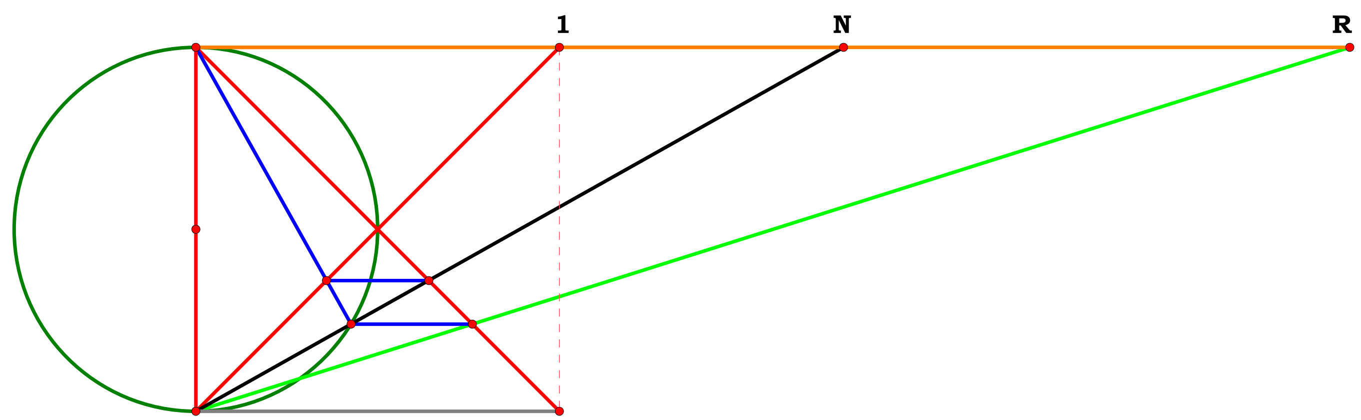
N^2-R = 0.00000

1CST5R5



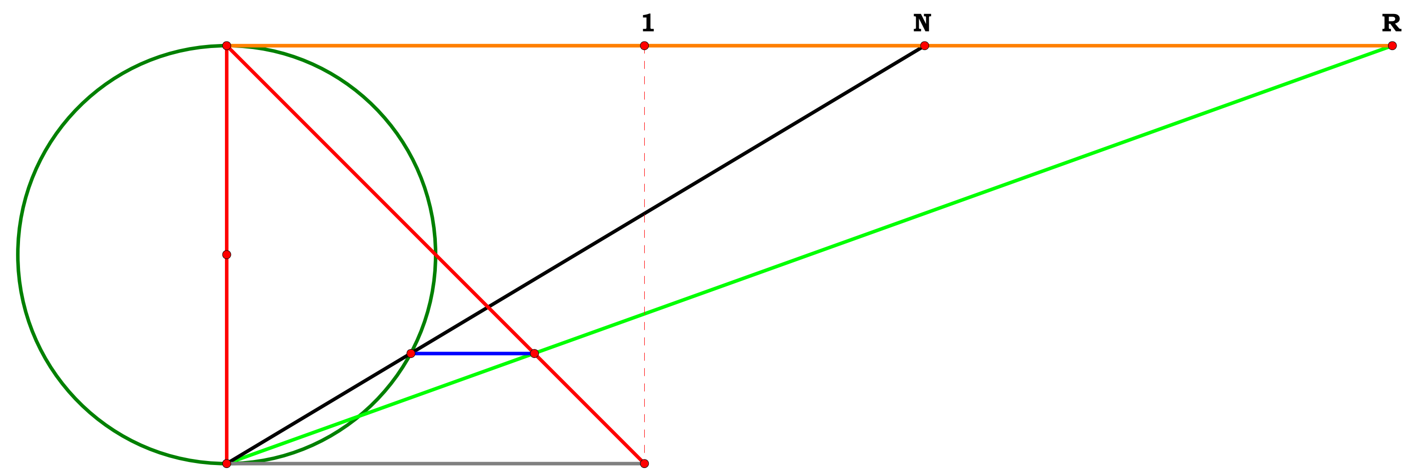
N = 1.63893 N^2-R = 0.00000
R = 2.68609

1CST5R14



N = 1.78152 N^2-R = 0.00000

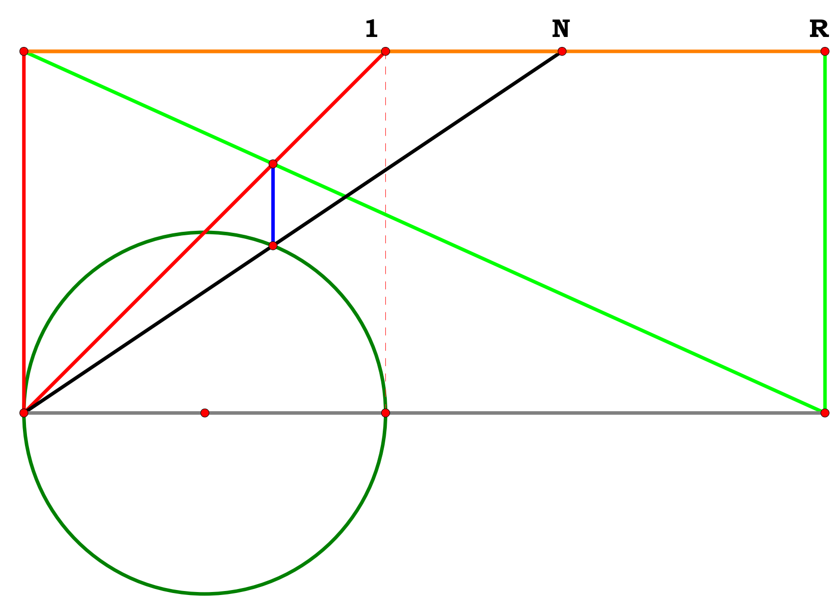
R = 3.17382



N = 1.67023
R = 2.78967

N^2-R = 0.00000

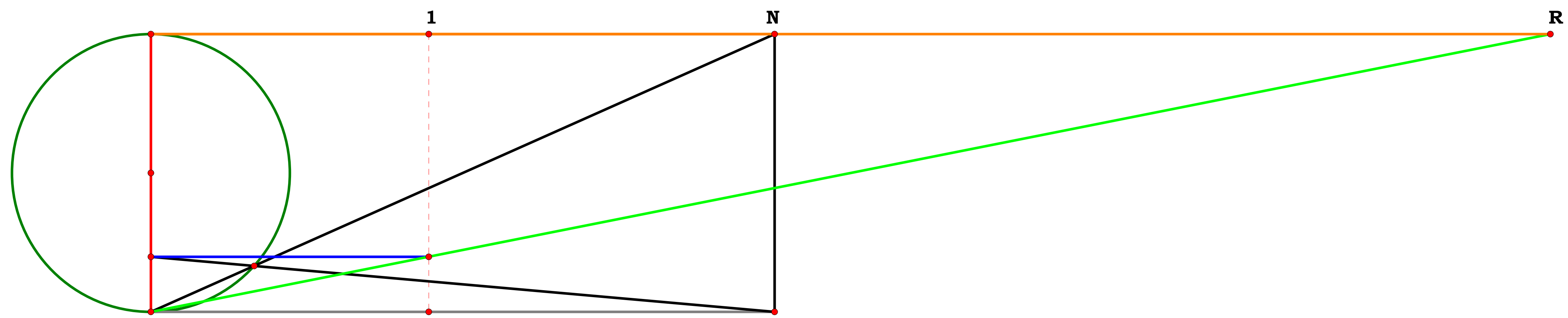
3OBT4R7



N = 1.48804

R = 2.21427 N^2-R = 0.00000

2SMT8R9

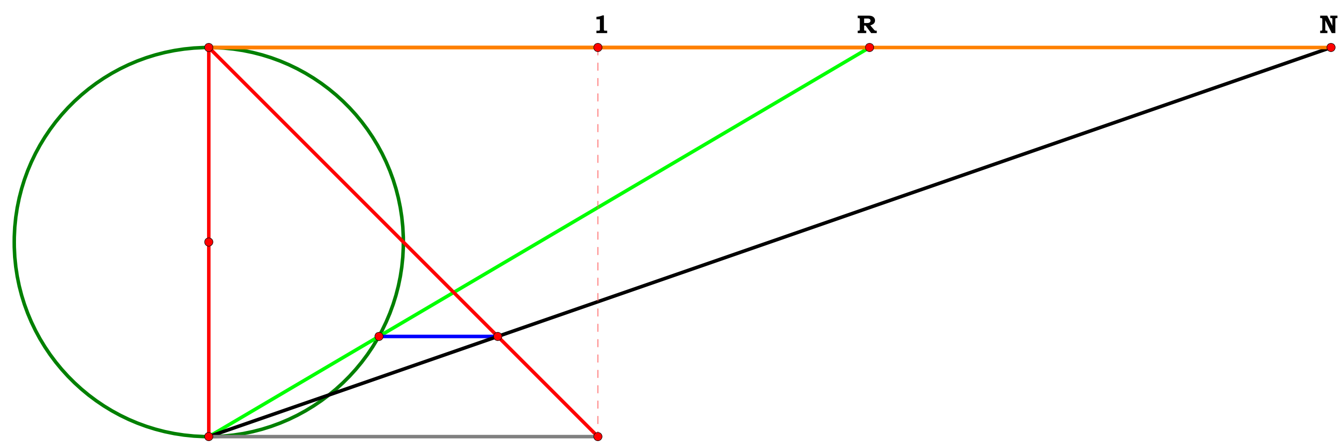


N = 2.24392

R = 5.03519

N^2-R = 0.00000

2SMT3R8

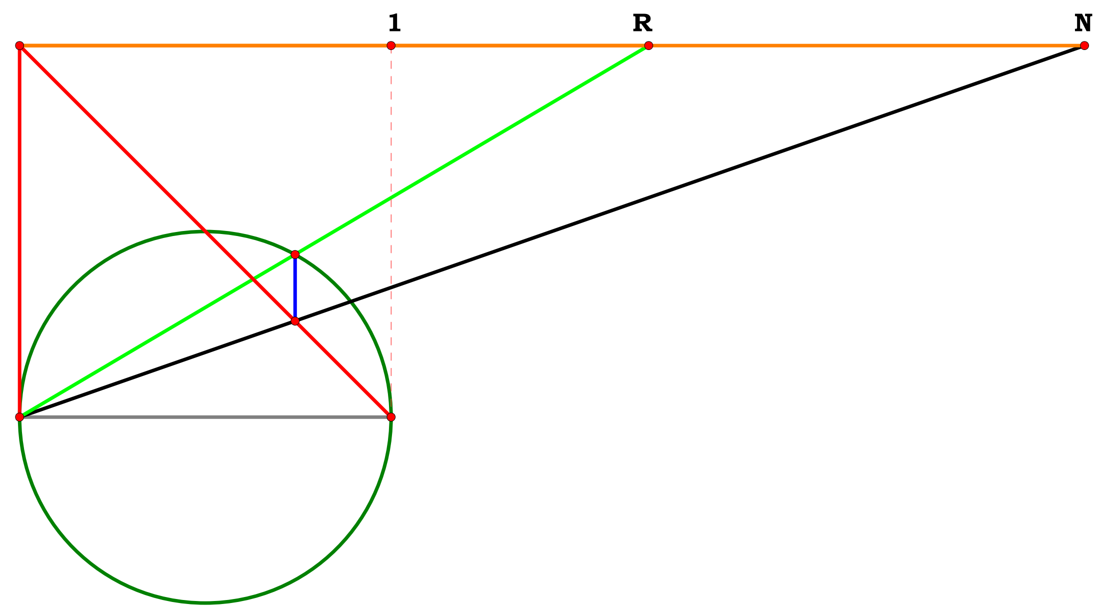


N = 2.88320

R = 1.69800

$\sqrt{N}$-R = 0.00000

3OBT3R5

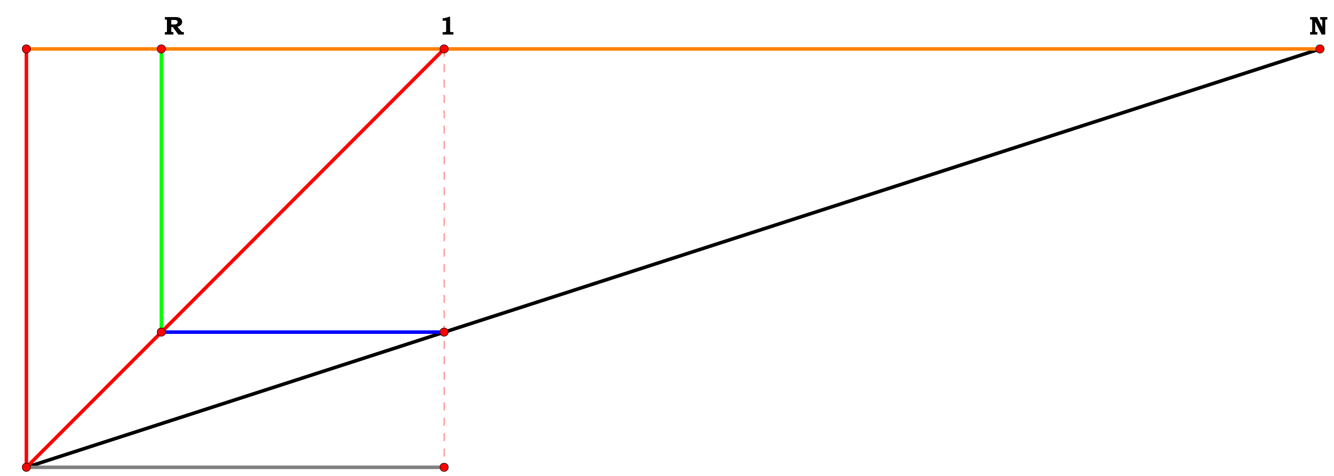


N = 2.86631

R = 1.69302

$\sqrt{N}$-R = 0.00000

1CST3R0

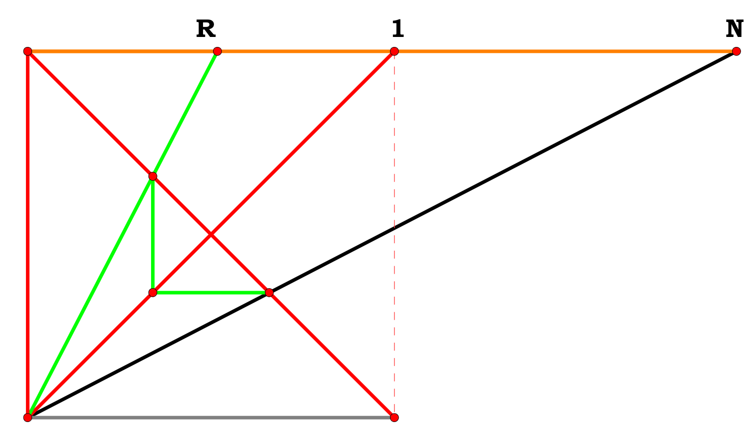


N = 3.09588

R = 0.32301

$$\frac{1}{N} - R = 0.00000$$

1CST5R2

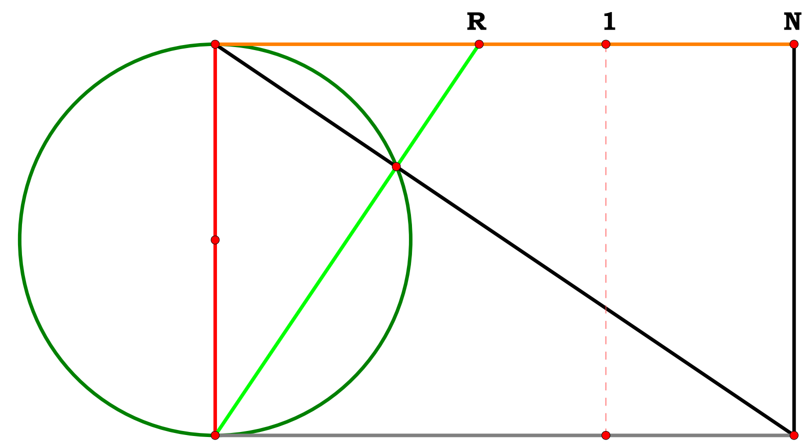


N = 1.93212

R = 0.51757

$\frac{1}{N}$-R = 0.00000

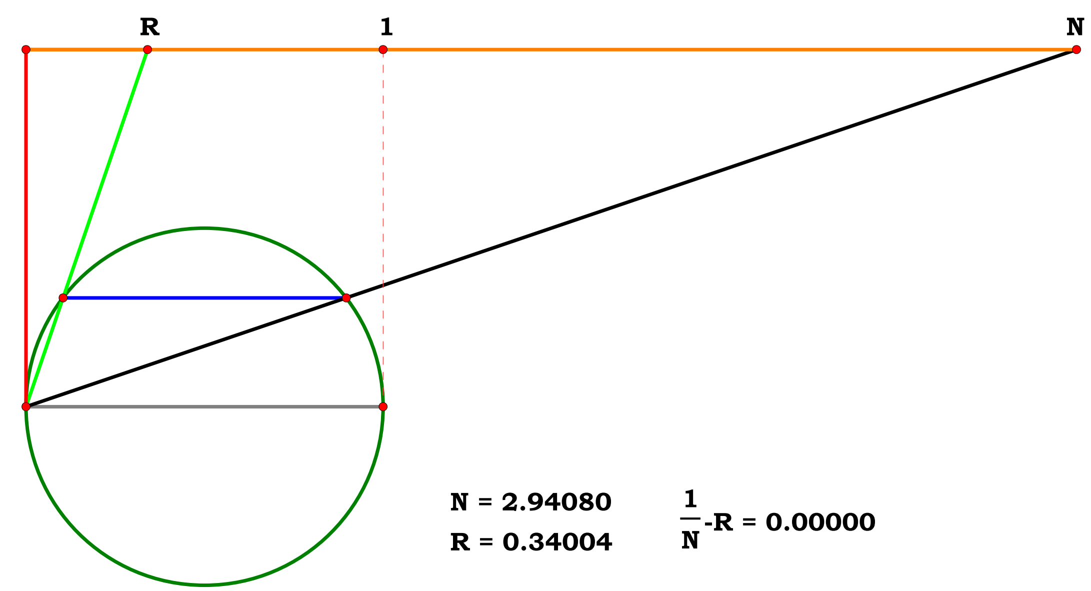
2SMT1R3



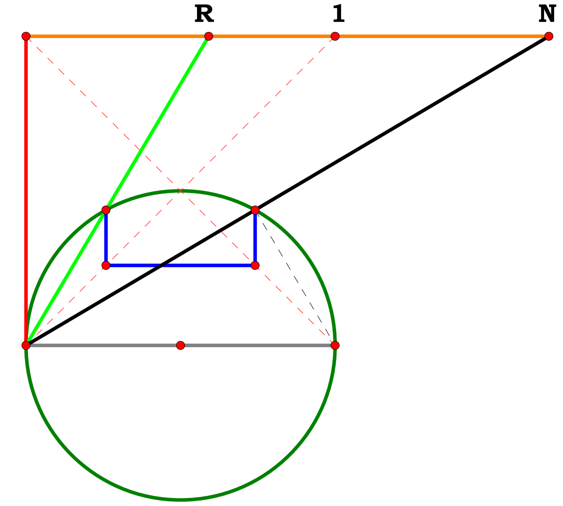
N = 1.48107
R = 0.67519

$\frac{1}{N}$-R = 0.00000

3OBT1R2



3OBT5R2



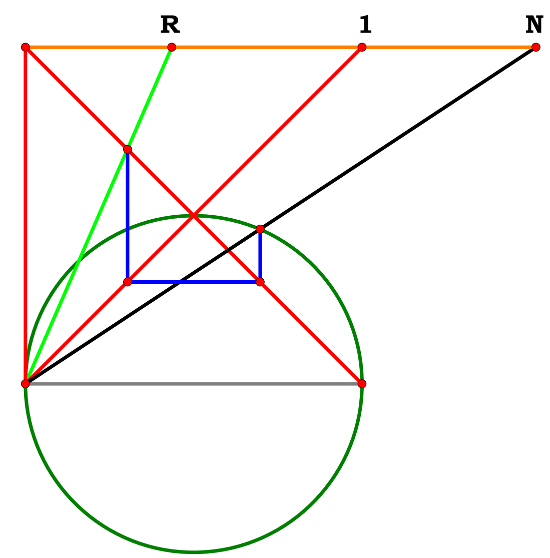
N = 1.69152

$\frac{1}{N}$ = 0.59119

R = 0.59119

$\frac{1}{N}$-R = 0.00000

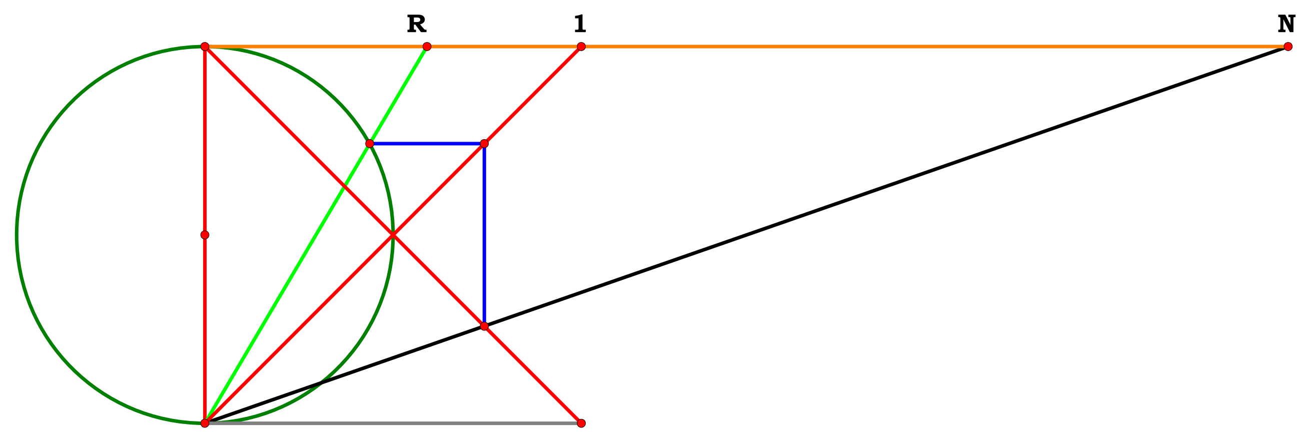
3OBT5R1



N = 1.51646
R = 0.43485

$$\frac{1}{N^2} - R = 0.00000$$

2SMT6R3

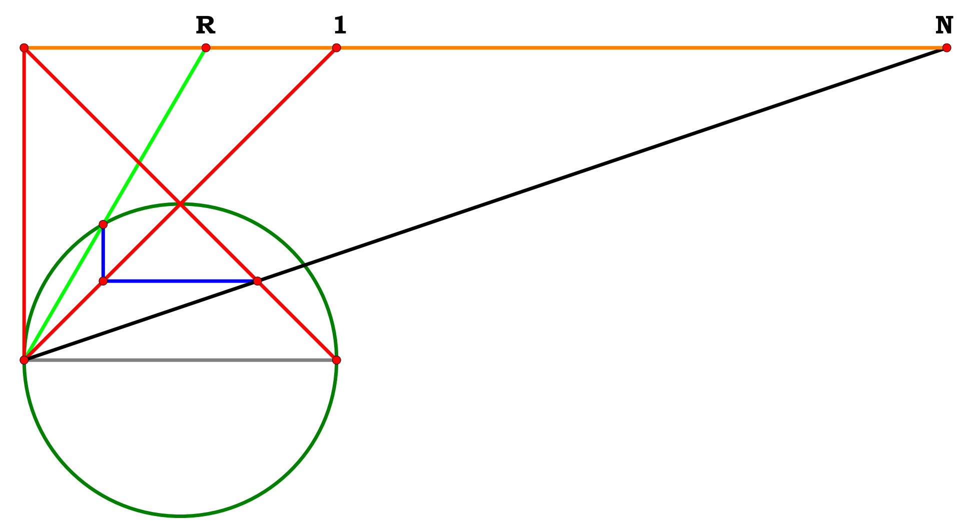


N = 2.87663

R = 0.58960

$$\frac{1}{\sqrt{N}} - R = 0.00000$$

3OBT5R4

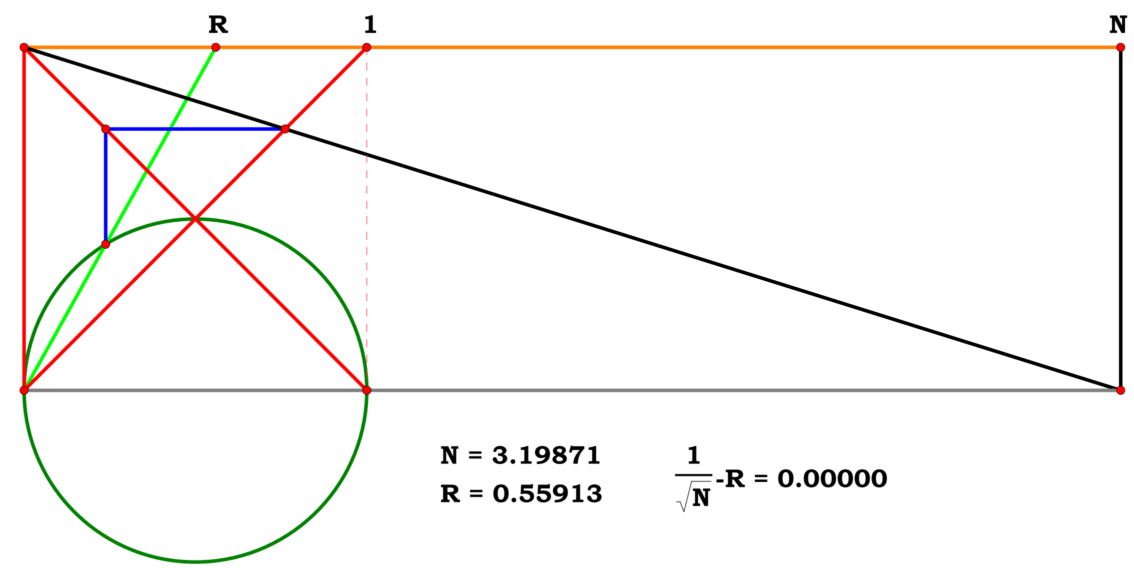


N = 2.95199

R = 0.58203

$$\frac{1}{\sqrt{N}} - R = 0.00000$$

3OBT11R2



N = 3.19871

R = 0.55913

$$\frac{1}{\sqrt{N}} - R = 0.00000$$

BAM. Discrete Expressions

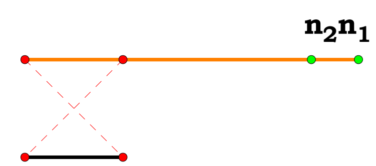


Plate 1 $\dfrac{N_1}{\sqrt{N_1^2}} = 1$

Plate 2 $\dfrac{\sqrt{N_1}}{\sqrt{\sqrt{N_1}^2}} = 1$

Plate 3 $\dfrac{N_1 \cdot N_2}{\sqrt{(N_1 \cdot N_2)^2}} = 1$

Plate 4 $\dfrac{N_1 \cdot \sqrt{N_2}}{\sqrt{N_1^2 \cdot \sqrt{N_2}^2}} = 1$

Plate 5 $\dfrac{\sqrt{N_1 \cdot N_2}}{\sqrt{\sqrt{N_1 \cdot N_2}^2}} = 1$

Plate 6 $\dfrac{N_1+N_2}{\sqrt{(N_1+N_2)^2}} = 1$

Plate 7 $\dfrac{\sqrt{N_1+N_2}}{\sqrt{\sqrt{(N_1+N_2)^2}}} = 1$

Plate 8 $\dfrac{N_1-N_2}{\sqrt{(N_1-N_2)^2}} = 1$

Plate 9 $\dfrac{\sqrt{N_1-N_2}}{\sqrt{\sqrt{N_1-N_2}^2}} = 1$

Plate 10 $\dfrac{N_1+\sqrt{N_2}}{\sqrt{(N_1+\sqrt{N_2})^2}} = 1$

Plate 11 $\dfrac{\sqrt{N_1+\sqrt{N_2}}}{\sqrt{\sqrt{N_1+\sqrt{N_2}}^2}} = 1$

Plate 12 $\dfrac{N_1-\sqrt{N_2}}{\sqrt{(N_1-\sqrt{N_2})^2}} = 1$

Plate 13 $\dfrac{\sqrt{N_1-\sqrt{N_2}}}{\sqrt{\sqrt{(N_1-\sqrt{N_2})^2}}} = 1$

Plate 14 $\dfrac{\sqrt{N_1}+\sqrt{N_2}}{\sqrt{(\sqrt{N_1}+\sqrt{N_2})^2}} = 1$

Plate 15 $\dfrac{\sqrt{\sqrt{N_1}+\sqrt{N_2}}}{\sqrt{\sqrt{\sqrt{N_1}+\sqrt{N_2}}^2}} = 1$

Mathcad will come up with a reduction of an equation that contains this, yet the product is always 1 it appears. The Program will not reduce it to 1.

$$\frac{((N_1^2+N_1^2 \cdot N_2^2+N_2^2)-N_1 \cdot N_2)}{\sqrt{((N_1^2+N_1^2 \cdot N_2^2+N_2^2)-N_1 \cdot N_2)^2}} = 1.00000$$

$$(N_1^2+N_1^2 \cdot N_2^2+N_2^2)-N_1 \cdot N_2 = 108.61744$$

$N_1 = 3.39997$

$N_2 = 2.91851$

02 Basic Arithmetic

John 312

Basic Arithmetic in Geometry

Introduction

A concise outline of basic arithmetic moves in Geometry.

A primary mechanism required for language is the ratio. And it is on a biological level first. On a conscious level, one must understand that as things are to each other, so too our mental manipulations of things must be to each other. This identity between reality and mentality is call rationality. It then follows that people who habitually lie, being aware of it or not, are not rational. On a religious level, when one says that God is Truth, they are enunciating a standard in rationality—of judgment.

Cardinal and Ordinal Operations.

These techniques are primarily focused not on ordinal operations but on cardinal. An example of an ordinal operation is Euclid's Book 1:1. The operations here depend first upon the unit.

Contents

Basic Techniques

Technique 1. To construct a unit.

With a given line, assert two points.

$\overline{A0B1}$ is the unit by convention.

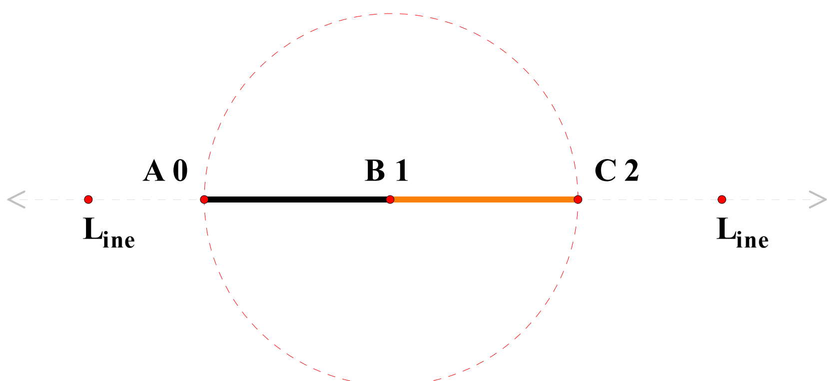
Every formal logic starts the same way—Arithmetic with the definition of the unit, so too in geometry. Craft is all about standards in construction and one starts by constructing our first standard.

Geometry is a relatiologic, which means the material difference is given, and the geometer only asserts boundaries. The material difference in geometry is unspecified, of no concern to the geometer. Thus geometric grammar can be used for any material difference, as Galileo indicated in his *Two New Sciences*. In a relatiologic, one can neither add to, nor subtract from difference, one can only make things by asserting boundaries to the things created.

The construction of a unit is understood in this wise:—Between two assertions there is one and only one difference.

Note: Preserve both naming conventions, Geometric and Arithmetic.

Technique 2. To a given unit add another.



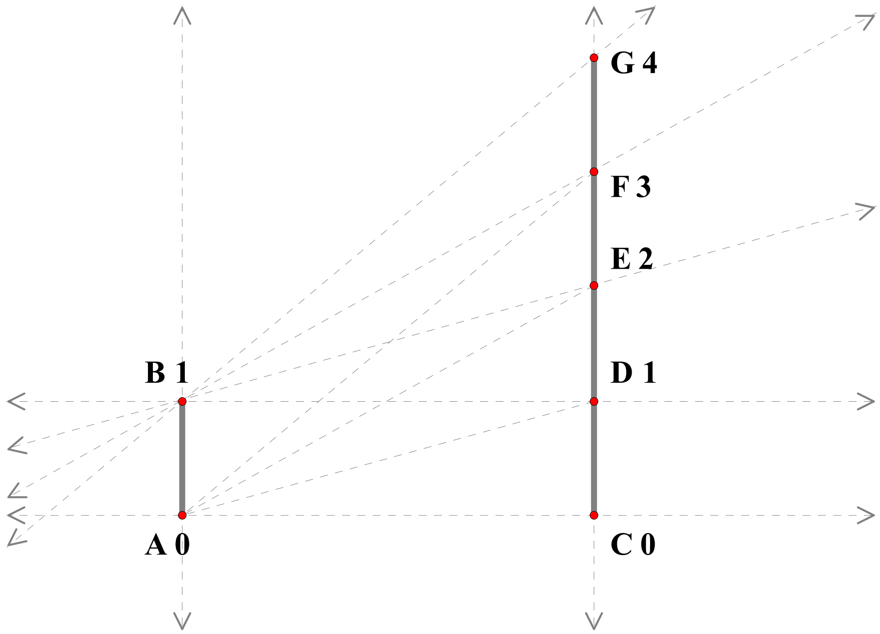
To a given line, Let $\overline{A1B0}$ be the given unit and to it, simply add another. Construct ⊙ B1A0.

$\overline{B1C2}$ is the required addition.

1 + 1 = 2 and 2 – 1 = 1.

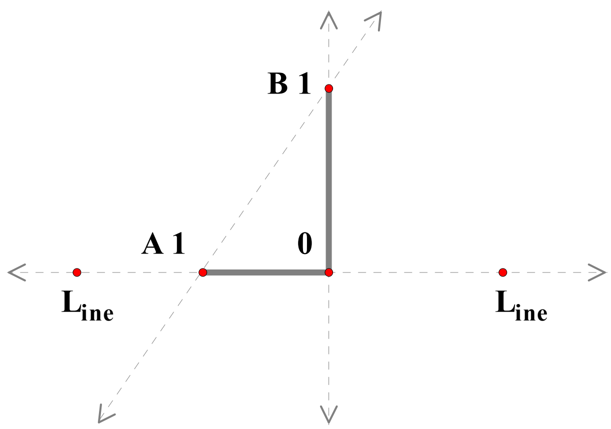
One need not drag this out for subtraction.

Technique 3: To construct a number of equal things.



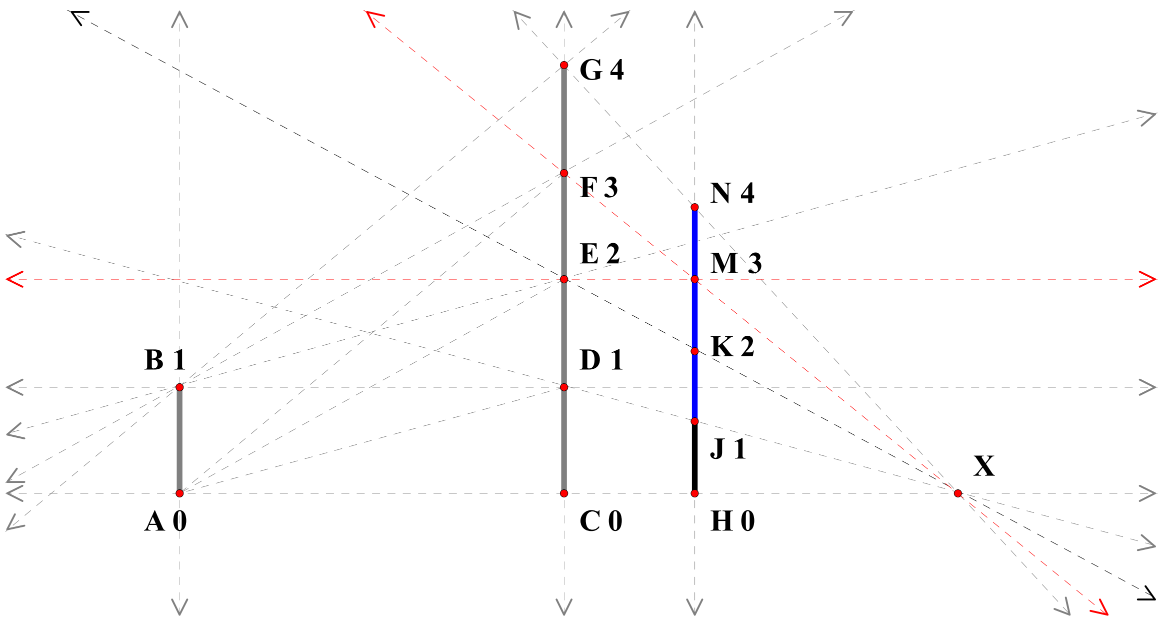
Given $\overline{A0B1}$ as our unit and 4 the number we are to construct, etc.,

Technique 4. To construct a ratio between linear units.



$\overline{0A1}$: $\overline{0B1}$ Is what was required .

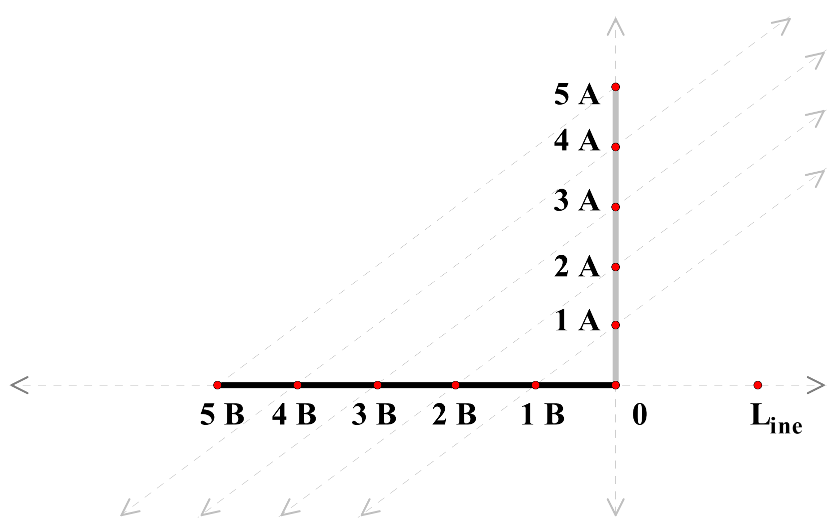
Technique 5. Construct a fraction.



Let $\overline{A0B1}$ be our given unit, and $\frac{2}{3}$ the fraction which we are to construct.

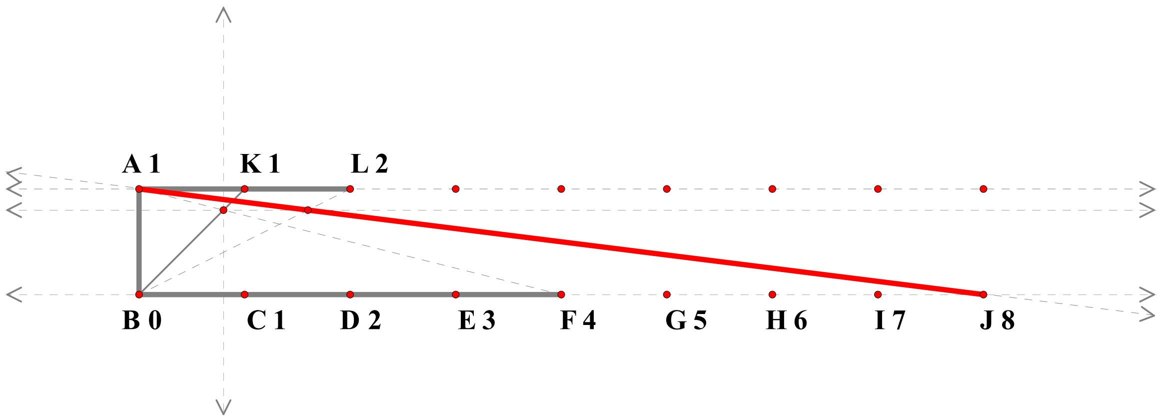
$\overline{H0J1}$ is $\frac{2}{3}$. Furthermore, I say that H0N4 is $\frac{4 \times 2}{3}$ . . .

Technique 6. Provide a ratio between numbers with two different units.



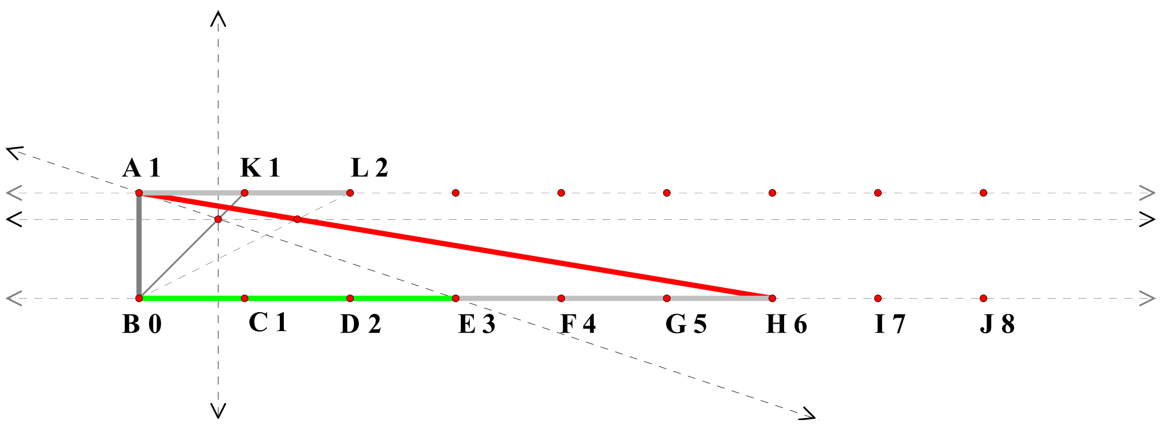
Let the numbers be 5 A and 5 B. Then 1A:1B :: 5A:5B.

Technique 7. Multiply two numbers.



With the given unit $\overline{A1B0}$ multiply 2 × 4.

Technique 8. Divide two numbers.

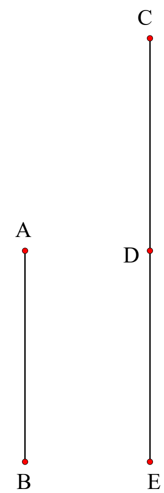


With the given unit $\overline{A1B0}$ divide 6 by 2.

Explanation.

I am going to try to explain how to multiply and divide a line by a line in Geometry.

If I were given two lines, and asked to compare them, I would look at them and say;



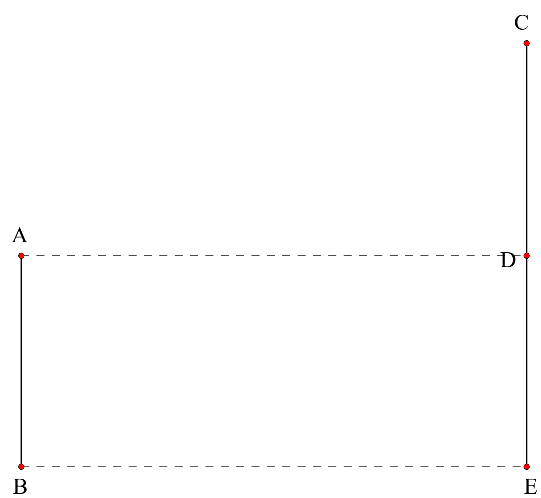
well, AB is shorter than CE. I mean, what can you do with two lines anyway? Reminds me of when I was a kid asking my mother what could I do with seven cents, realizing early on I was three cents short of a dime. If I were Euclid I would subtract one from the other and find that CE — AB = CD, or if you're a top down programmer, CE — AB = DE. If I move CE off a ways,

I would say that CE — AB = CD, or DE which ever you choose. Non-Euclidean Geometers, like Einstein, claim that this equality, this simultaneity, is not true and that at some point of moving AB and CE apart, as if it were part of the equation, does mysterious things to these segments. It amounts to a thief's logic—moving CE off sufficiently will make AB infinitely greater than CE 'cause we exact a kind of tribute on it and subtract that tribute as we go. It amounts to constructing a square say, of 25 square inches or so, and claiming if we repeat it enough, well, it just plain disappears—we wore it out. While on the other hand, there are those who claim that if I assert a point an infinite number of times, I can create a line. You know, like waving a knife in the air an infinite

number of times and making a salad[1]. This is the kind of mentality that makes credit card lenders rich. As I said, non-Euclidean Geometers are really crooked bankers in disguise—or really lousy cooks. A basic fact of abstraction, when you really know that a boundary is not the difference (a point is that which has not part), a form is in fact absolute, you know you can never attribute difference to that form, the form is applied as a boundary to any given difference—material. The cut is not the cutted! Wow, that was trashy!

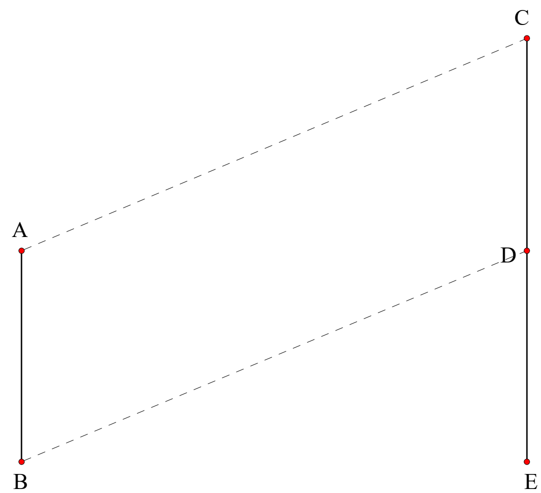
Or, if *the point is that which has no part*, then the relative difference between boundaries can not be asserted of either boundary—one of the points Plato tried to make. Einstein's seem to be of a contrary opinion.

Now if I had AB, and wanted to construct CE from it.



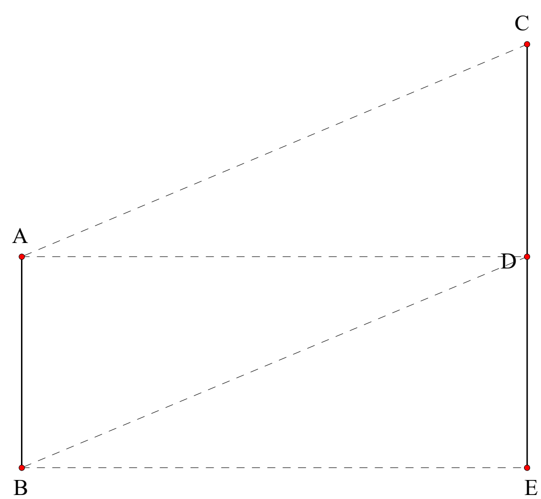
I could transfer one segment at a time

[1] For those of you who feel put out because I have said this more than once, it is revenge for having to put up with all the times one reads that a line, plane, space is composed of an infinite number of points—at least one can eat a salad.

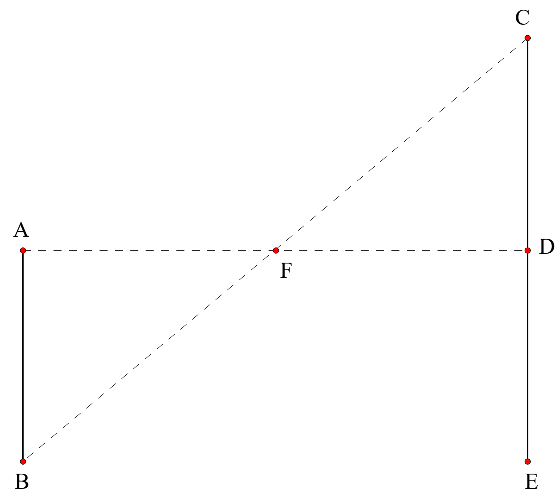


using parallel lines, but this is not multiplication, it is multiple processes, or simply addition. Parallel lines gives us the ability to do multiple additions, which is again not multiplication. One sign of that is that we have to assert each unit point in constructing CE. We have to assert each unit point just to do the parallels. Duh!

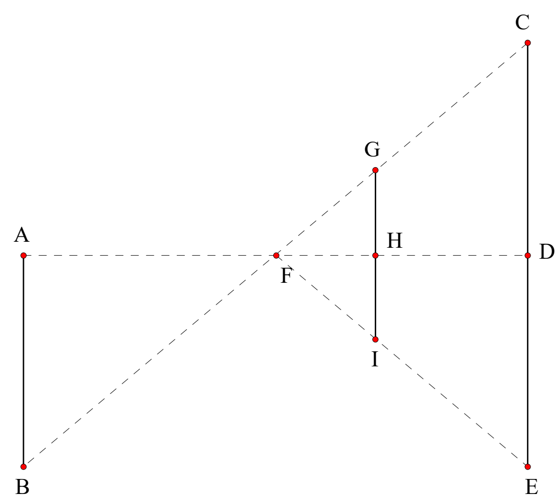
One of the things our ancient quibbling buddies, the Greeks, did tell us is that in order to multiply and divide, we have to have a unit. This is just part of plain simple Arithmetic. And they also said that when dealing with numbers in multiplication and division we were dealing with square and oblong (rectangular) numbers. Keep these ideas in mind. A square, an oblong, and a unit. Euclid drew a number of them. We will have need of them. For the moment let us learn what they did say about ratio, which we will also need. Now, if in constructing CE, we stayed up too late;—



and made a mistake in drawing—or were simply dyslexic;



we would discover the ratio. As AB is to CD, so AF is to DF. And by George—(if you remember, he too was a hairy fellow and curious), One learns how to take any multiple and divide another segment of any length by the same multiple. From multiple addition, we have a kind of multiple division, but it is not division, it is still just a plain ratio, of anther segment.

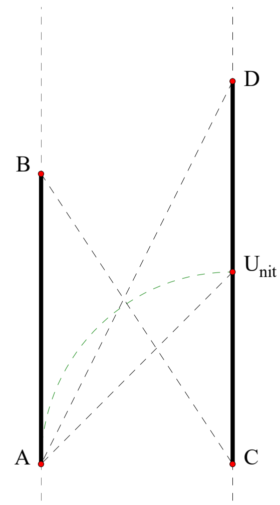


Now, as AB is to GH, so to DE is to HI, etc., etc. This is all fine and good, but, we still have not really learned how to multiply and divide. That is because these ratio's work regardless of the notion of unit, or square. Unless you are a crooked banker or a non-Euclidean Geometer, or a bad cook, this relationship is always true. There is one, and only one, difference between two points.

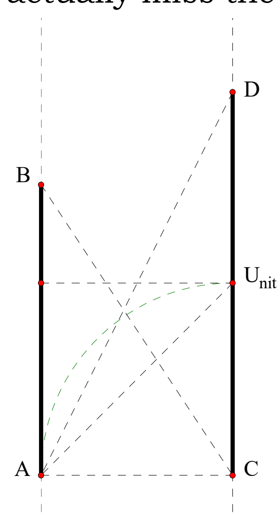
We are building our ideas up, one standard at a time. Intellectually, we fail, at the point we cannot abstract and use a standard—or what Plato called ***form*** because a boundary is not a difference and by definition (not a difference) always true. The divergence of language itself, starts with the inability to establish a standard even for a name. Many

linguists call it the “growth” of language when meaning changes, but then they are non-Euclidean Geometers at heart also. What do they say of a government that has got its constitution saying exactly the opposite of what is written? If you want to reduce them to rubble, ask them outright, *Why can one word be or not be predicated of another*? Or again, if definition is conventional, and meaning can never be conventional, what in the heck does meaning have to do with definition? or even language? They will either get a funny look on their face mumbling to themselves, or start babbling non-sense to you. I have some books by the gods on that topic also. It is really simple, . . . but not here, not now.

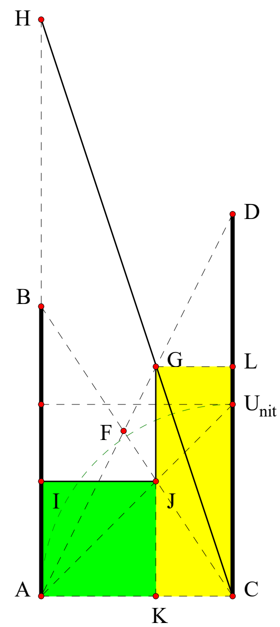
Multiplication and division rely on a standard in unit. So lets add that and see where we go.



At the outset the figure is very shy and unassuming. If you saw it laying in the street, you would hardly be pressed to pick it up. We have placed our segments the difference of our chosen unit apart, and we do have a square. No offence to Descartes who tried to find what I am doing, we don’t have a number line, but a lined number. First time I ever seen a studious use of cross hairs actually miss the target.

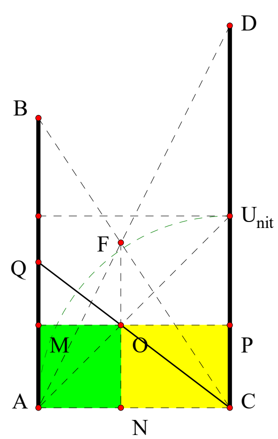


It don't look like much, but it can not only multiply and divide, one can use it to do much in the way of exponential manipulation as well. Let us take a closer look as to what the figure tells us.



$$\frac{(\text{Area } \triangle \text{BAC})}{(\text{Area } \triangle \text{ADC})} - \frac{(\text{Area IJKA})}{(\text{Area KGLC})} = 0.00000$$

This is how we perform multiplication. Given AC as our unit, AB × CD = AH. In order to see this using the Arithmetic Grammar system, We divide AC by AC and get 1, our Unit. We then divide AB by AC which gives AB in terms of our unit. We then divide CE by AC and acquire that in units, and again for AH. We will find that by using the notion of Unit, Square and Oblong Numbers, which is incorporated in the idea of ratio, we can Multiply. And we can do what no binary calculator will ever do, we do it exactly. What about division?



$$\frac{(\text{Area MANO})}{(\text{Area ONCP})} - \frac{(\text{Area } \triangle \text{BAC})}{(\text{Area } \triangle \text{ADC})} = 0.00000$$

Wouldn't you know it, there is a triplicate ratio in the figure! Right under our pencil. Didn't Euclid write that it was the hardest thing to do in geometry? Well, I have never taken geometry in school and set out to comprehend the triplicate ratio, guess I got somewhere. Going through our steps as before, we find that AB ÷ CD = AQ. Each of these steps is proven individually in Euclid. I suspect he was like Plato and wanted to see if his readers were smart enough to add and subtract ideas. And again, no binary computer will ever be up to Geometry, as Geometry is exact.

One can do a whole lot with this figure, through various projections. One can do a lot in the way of exponential manipulation. Try that with cross hairs! Some of the methods one will find in those unpublished books I was talking about. (and please, don't mess up a joke by taking me seriously at the wrong time) I don't know how long the gods will let me work on them, in fact, if it were not for Them, I would have been killed over thirty years ago. Imagine that, I am a walking contradiction, a living dead man. At any rate, I hope you have fun playing with the figure.

Now this is not the place to show the solution to the Delian Problem. I do that in a novel I call The Delian Quest. My god, if one is just learning the simple four, by adding multiplication and division to our list of addition and subtraction, it may be too difficult realize a revolution in Euclidean Geometry based upon a standard long ago recognized but left unemployed—just like these. I will put the idea in the Geometer's Sketchpad file.

I hope I have made it clear that through multiple addition and subtraction, one leads into the understanding of ratio, just like Euclid did, but they are still a step away from multiplication and division. Those depend upon a respect for, and understanding of a standard in definition. We learn to add, and subtract. These teach us ratio—it is part of them. We learn about the unit which is taught by them also. This then leads to multiplication and division and our primary four are thus established.

Basic Arithmetic In Geometry

Addition

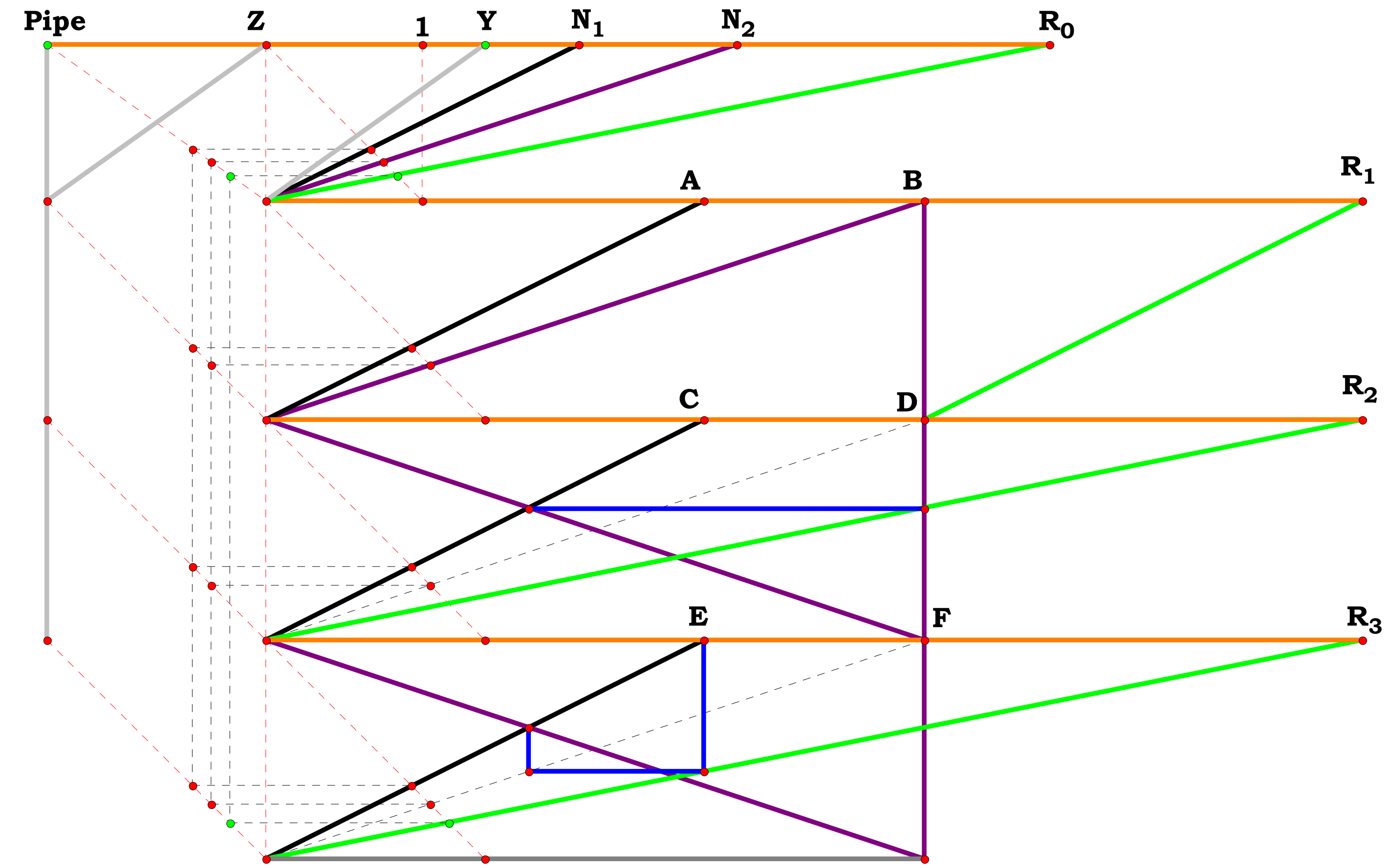
John 312

Unit.
Given.
Descriptions.
Definitions.

Introduction to Addition:

$N_1 = 2.00000$
$N_2 = 3.00000$
$R_0 = 5.00000$
$(N_1+N_2)-R_0 = 0.00000$

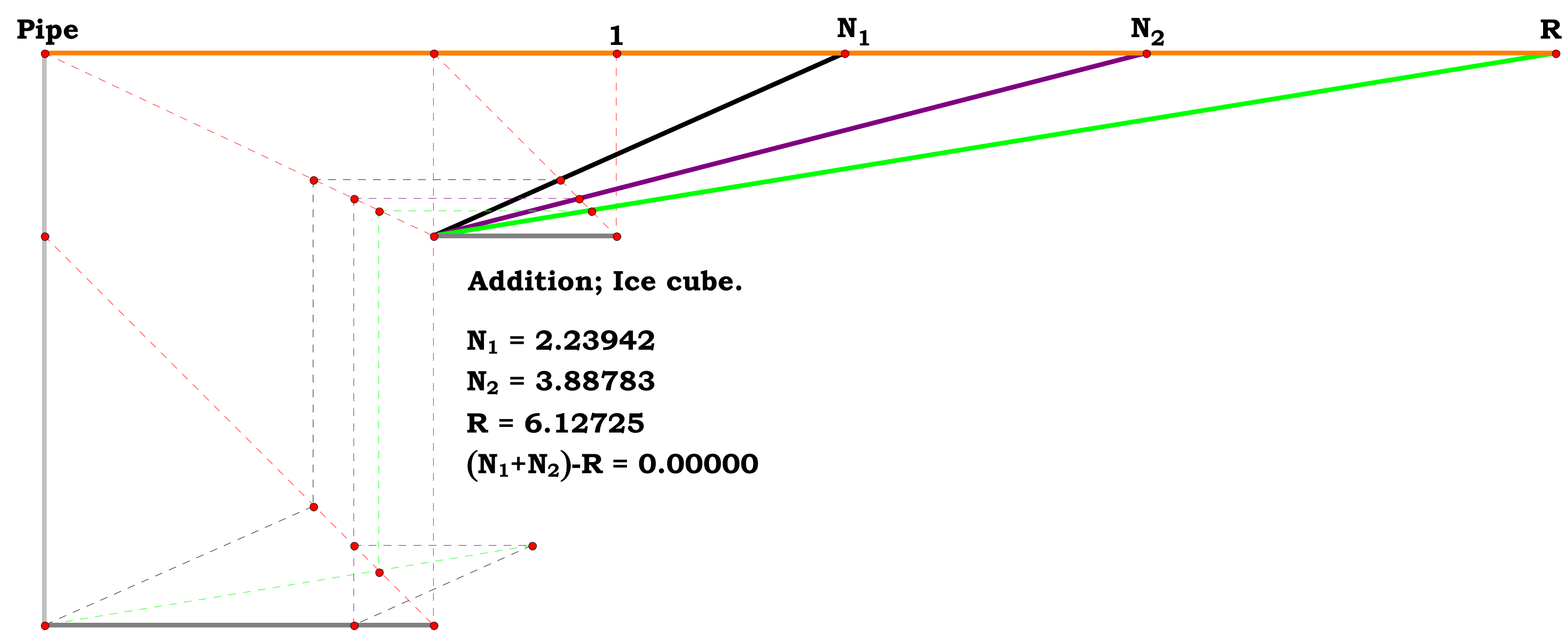
	$Y = 1.39903$
$\frac{A}{Y} = 2.00000$	$A = 2.79805$
$\frac{B}{Y} = 3.00000$	$B = 4.19708$
$\frac{R_1}{Y} = 5.00000$	$R_1 = 6.99513$
$\frac{C}{Y} = 2.00000$	$C = 2.79805$
$\frac{D}{Y} = 3.00000$	$D = 4.19708$
$\frac{R_2}{Y} = 5.00000$	$R_2 = 6.99513$
$\frac{E}{Y} = 2.00000$	$E = 2.79805$
$\frac{F}{Y} = 3.00000$	$F = 4.19708$
$\frac{R_3}{Y} = 5.00000$	$R_3 = 6.99513$



When collecting analog glyphs I like to put them into a structure I call Jacob's Ladder. It is a figure used for a more formal and orderly display of Basic Analog Grammar, or Mathematics and it takes advantage of data piping which can distribute products over an analog network. Everything happens concurrently.

At the bottom, when one is writing machines, can do most if not all computations in the pipeline allowing one to actually build a more compact computation matrix.

One can do their computations from either end of a segment. On one end one might look for the end of it over miles, but every thing is also in the same proportion at the unit end of the segment. Since Sketchpad does not have a zoom function, one can actually zoom using the pipe. One can actually shrink the pipe down to the sub-atomic level and save a whole lot of paper. Geometry, when done intelligibly, does not change with perceptible size. Those who claim to be mathematicians, logicians, etc, who make their arguments based on the perceptible are only trying to convince those who are as stupid or stupider than they are, something like spooky action at a perceptible distance.



Addition; Ice cube.

$N_1 = 2.23942$
$N_2 = 3.88783$
$R = 6.12725$
$(N_1+N_2)-R = 0.00000$

Unit.

$AF := 1$

Given.

$N_1 := .94258 \qquad AC := N_1$

$N_2 := 1.41387 \qquad AD := N_2 \qquad FH := N_2$

Descriptions.

$AB := \frac{AD \cdot AC}{AC + AD} \qquad AB = 0.565548$

$BC := AC - AB$

$FG := \frac{AC \cdot FH}{AC + FH} \qquad FG - AB = 0$

$GH := FH - FG$

$EG := \frac{FH}{AC + FH} \qquad EG = 0.6$

$BE := \frac{AC}{AC + FH} \qquad BE = 0.4$

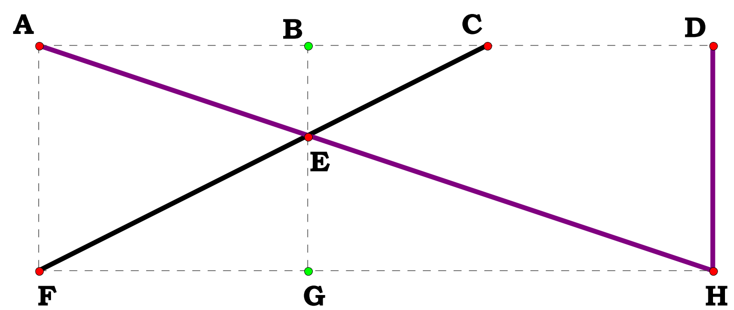
Definitions.

$AB - \frac{N_1 \cdot N_2}{N_1 + N_2} = 0 \qquad FG - \frac{N_1 \cdot N_2}{N_1 + N_2} = 0$

$BC - \frac{{N_1}^2}{N_1 + N_2} = 0 \qquad GH - \frac{{N_2}^2}{N_1 + N_2} = 0$

$EG - \frac{N_2}{N_1 + N_2} = 0 \qquad BE - \frac{N_1}{N_1 + N_2} = 0$

Addition: a note on proportion



AF = 1.00000
AB = 0.56555
AC = 0.94258
AD = 1.41387
EG = 0.60000
BE = 0.40000

Whenever we have two lines crossing such as C and D, then we have a few handy proportions to write:

Descriptions.

$$FP := \frac{AD}{AC + AD} \qquad FP = 0.6$$

$$R_2 := \frac{AD}{FP} \qquad R_2 = 5$$

Definitions.

$$FP - \frac{N_2}{N_1 + N_2} = 0$$

$$R_2 - (N_1 + N_2) = 0$$

Unit.

$AB := 1$

Given.

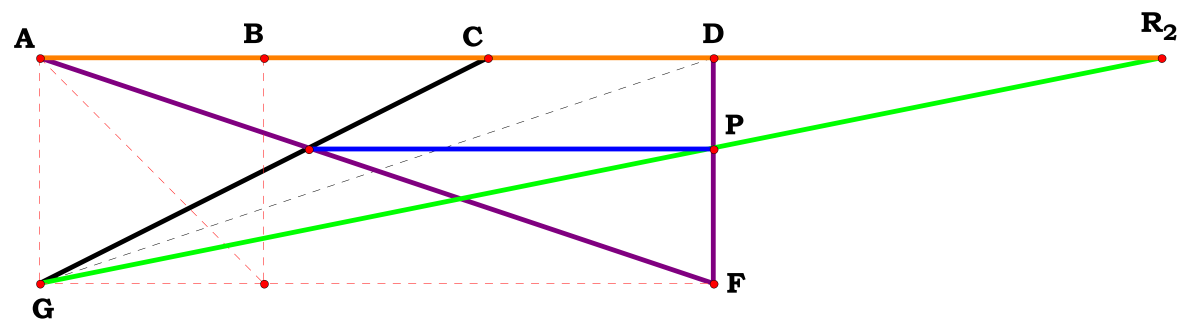
$N_1 := 2 \quad AC := N_1$

$N_2 := 3 \quad AD := N_2 \quad FG := N_2$

$AB = 1.00000$
$AC = 2.00000$
$AD = 3.00000$
$FP = 0.60000$
$R_2 = 5.00000$

Addition: Plate 2

Do not expect me to try and write up plate 1, the whole parallel thingy. The only thing required of one is the grouping of two things. But, for all those highly acclaimed genius's, How much of math can you do without realizing that we only have two primitive concepts and if one negates either or both of them for any reason, at any time, then they have violated them all which would make thought and existence, wholly impossible. As Plato tried to get his readers to comprehend, all of correct grammar is dialectical, or again, binary, or again, is accomplished by complete induction and deduction of a unit. It is wholly revealing when mathematicians work so hard to negate the unit spinning their mystic yarns.



When doiung proportion along a single segment, is not each part of that segment parallel to the other?

Unit.

$AB := 1$

Given.

$N_1 := 2 \quad AE := N_1 \quad BJ := N_1$

$N_2 := 3 \quad AF := N_2 \quad BK := N_2$

Addition: Plate 3.

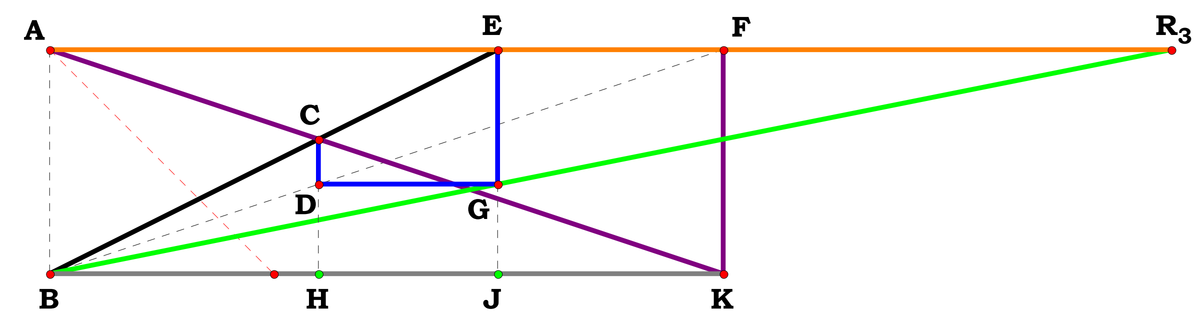
Descriptions.

$$BH := \frac{AE \cdot BK}{AE + BK} \qquad BH = 1.2$$

$$DH := \frac{AB \cdot BH}{BK} \qquad DH = 0.4$$

$$R_3 := \frac{BJ}{DH} \qquad R_3 = 5$$

AE = 2.00000
AF = 3.00000
BH = 1.20000
DH = 0.40000
R_3 = 5.00000

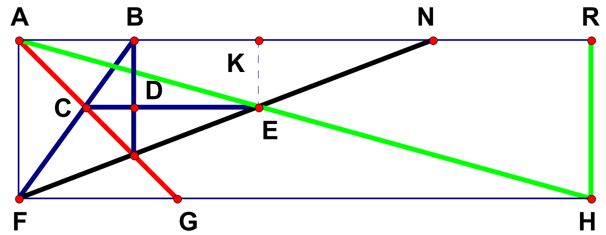


Definitions.

$$BH - \frac{N_1 \cdot N_2}{N_1 + N_2} = 0$$

$$DH - \frac{N_1}{N_1 + N_2} = 0$$

$$R_3 - \left(N_1 + N_2\right) = 0$$



1CST2R6

Unit. $AF := 1$ **Given.** $AN := 3$

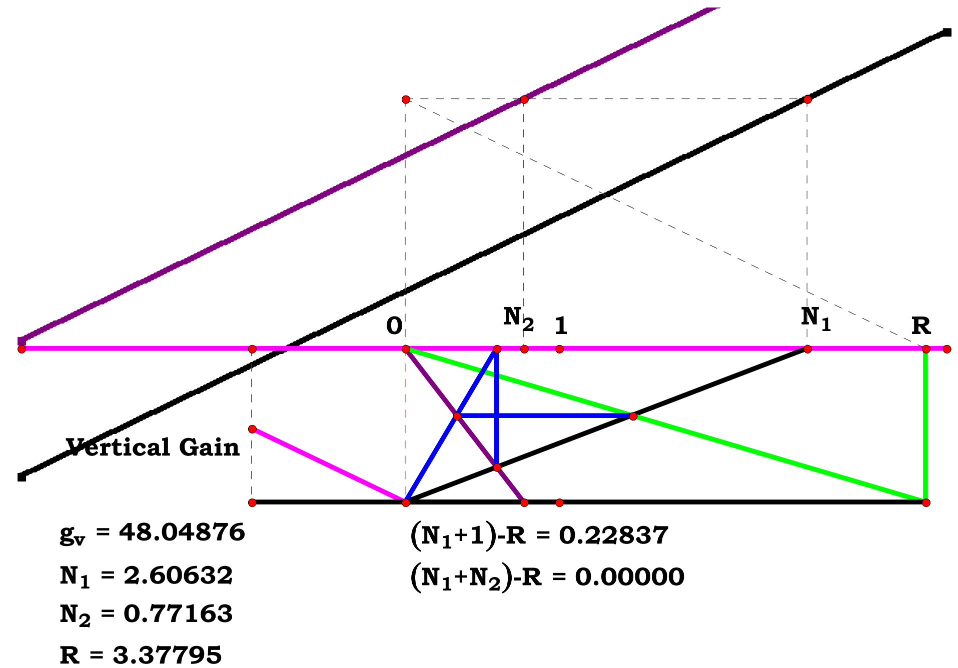
Descriptions.

$$FG := AF \qquad AK := \frac{AN^2 + AN}{2 \cdot AN + 1} \qquad KE := \frac{AN}{2AN + 1}$$

$$FH := \frac{AK \cdot AF}{KE} \qquad AR := FH$$

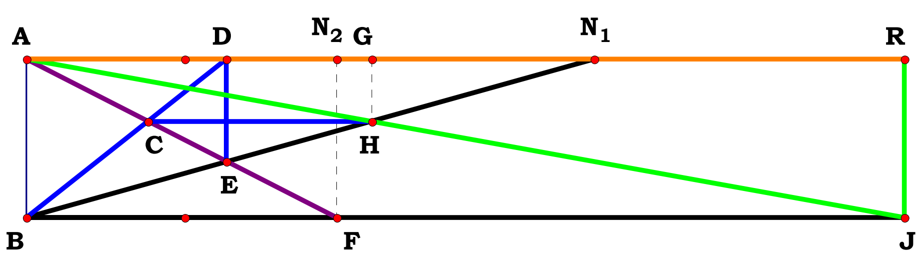
Definitions.

$$AR - (AN + 1) = 0$$



Given. $N_1 := 3$ $N_2 := 2$ $ab := 1$

Descriptions.



$$gh := \frac{N_1}{2N_1 + N_2} \qquad ag := \frac{N_1^{\ 2} + N_1 \cdot N_2}{2 \cdot N_1 + N_2} \qquad ar := \frac{ag \cdot ab}{gh}$$

Definitions.

$$ar - \left(N_1 + N_2\right) = 0$$

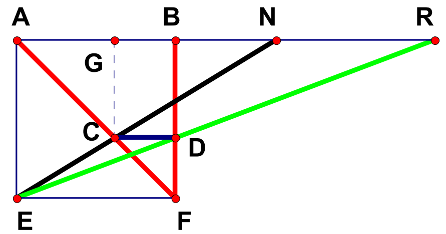
Two Transforms.

0, 0. 2

1, 0. $N_1 + 1$

0, 2. $1 + N_2$

1, 2. $\left(N_1 + N_2\right)$



1CST4R4

Unit.

$AB := 1$

Given.

$AN := 3$

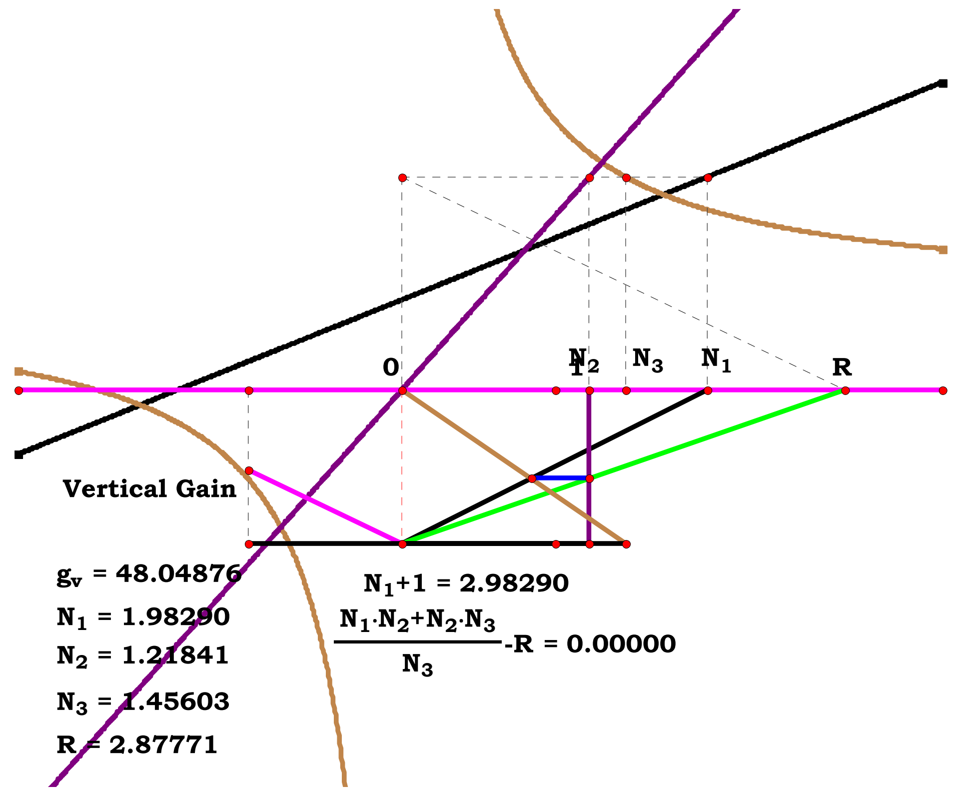
Descriptions.

$AG := \frac{AB \cdot AN}{AB + AN}$ $\quad BD := AG$

$AR := \frac{AB^2}{AB - BD}$

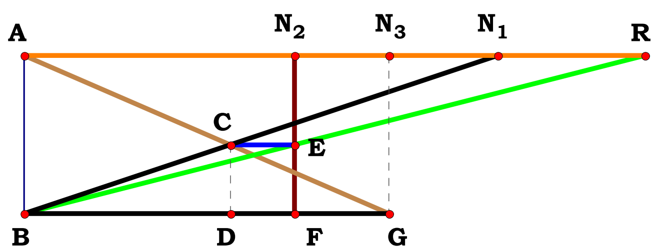
Definitions.

$AR - (AN + 1) = 0$



Given. $N_1 := 4$ $\quad N_2 := 3$ $\quad N_3 := 2$

Descriptions.



$cd := \frac{N_3}{N_1 + N_3}$ $\quad ar := \frac{N_2}{cd}$

Definitions.

$ar - \frac{N_2 \cdot (N_1 + N_3)}{N_3} = 0$

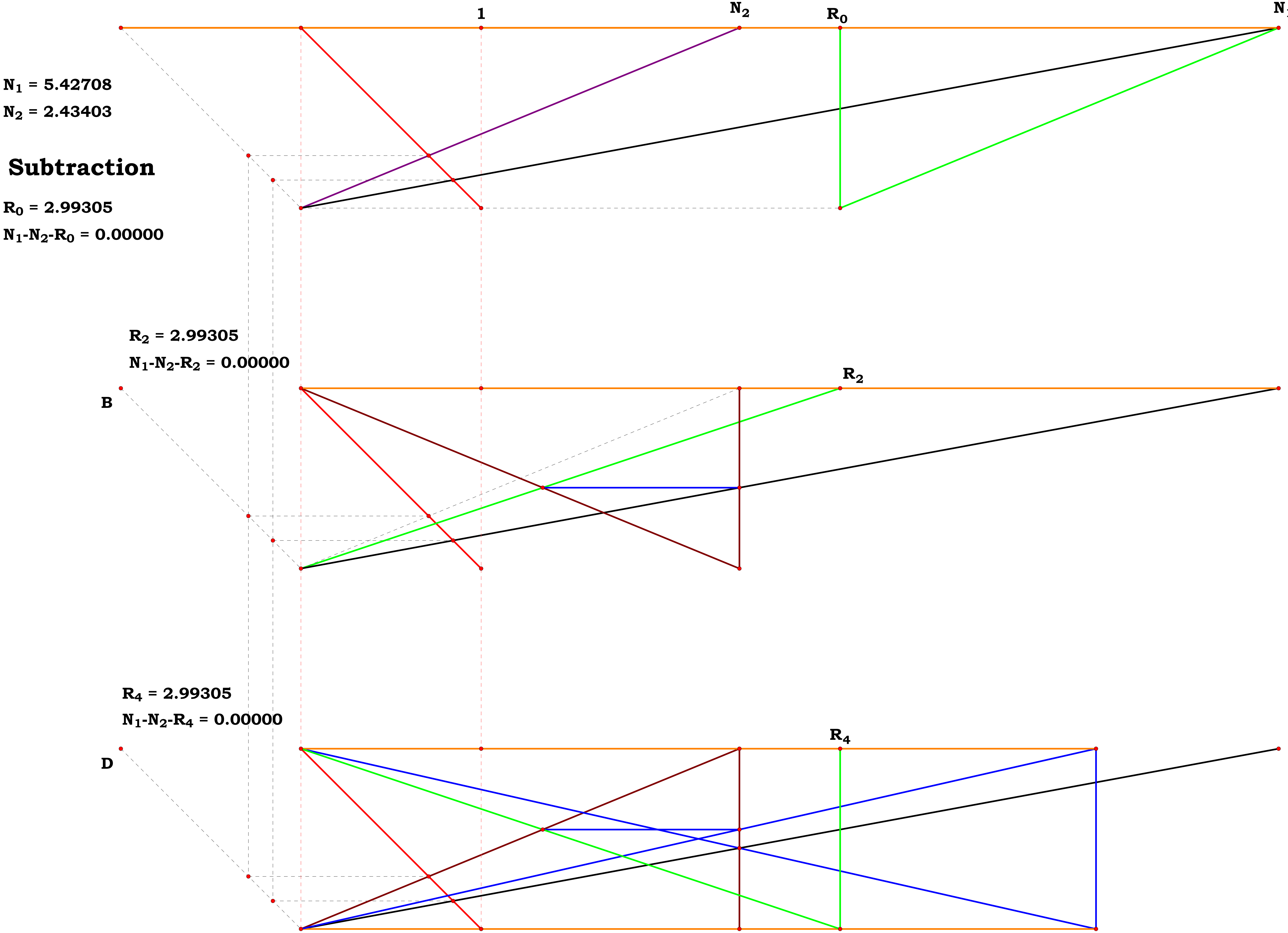
Three Transforms.

0, 0, 0.	2	1, 2, 0.	$N_2 \cdot (N_1 + 1)$
1, 0, 0.	$N_1 + 1$	1, 0, 3.	$\frac{N_1 + N_3}{N_3}$
0, 2, 0.	$2 \cdot N_2$	0, 2, 3.	$\frac{N_2 \cdot (N_3 + 1)}{N_3}$
0, 0, 3.	$\frac{N_3 + 1}{N_3}$	1, 2, 3.	$\frac{N_2 \cdot (N_1 + N_3)}{N_3}$

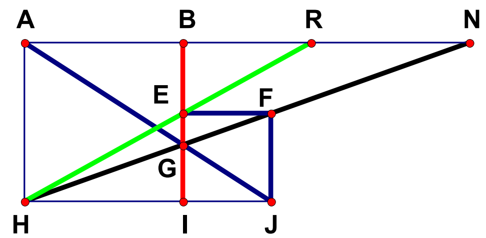
Basic Arithmetic In Geometry

Subtraction

John 312



1
N2
R0
N1
N1 = 5.42708
N2 = 2.43403
Subtraction
R0 = 2.99305
N1-N2-R0 = 0.00000
R2 = 2.99305
N1-N2-R2 = 0.00000
R2
B
R4 = 2.99305
N1-N2-R4 = 0.00000
R4
D



Unit.

$AB := 1$

Given.

$AN := 3$

From Bam Dictionary Sampler 1CST1R1

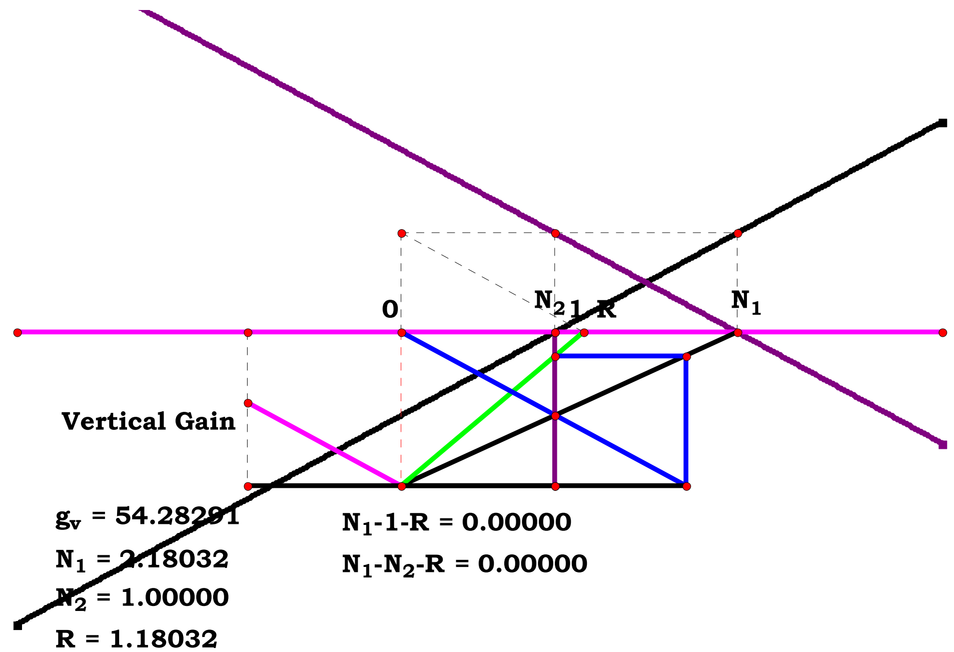
Descriptions.

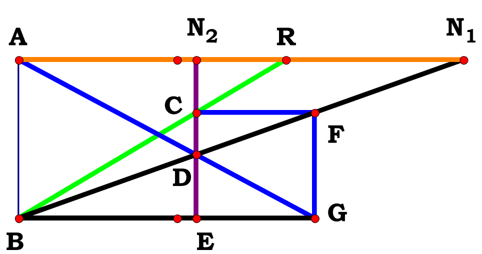
$AH := AB \quad HI := AB \quad HJ := \dfrac{AN}{AN - 1}$

$FJ := \dfrac{AH \cdot HJ}{AN} \quad EI := FJ \quad AR := \dfrac{HI^2}{EI}$

Definitions.

$(AN - 1) - AR = 0$





$N_1 := 3$

$N_2 := 2$

$ab := 1 \quad be := N_2 \quad bg := \dfrac{N_1 \cdot N_2}{N_1 - N_2} \quad fg := \dfrac{ab \cdot bg}{N_1} \quad ce := fg \quad ar := \dfrac{ab \cdot N_2}{ce}$

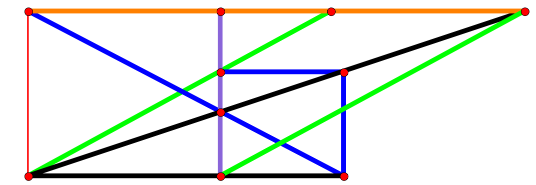
Definitions.

$fg - \dfrac{N_2}{N_1 - N_2} = 0 \qquad ar - \left(N_1 - N_2\right) = 0$

Two Transforms.

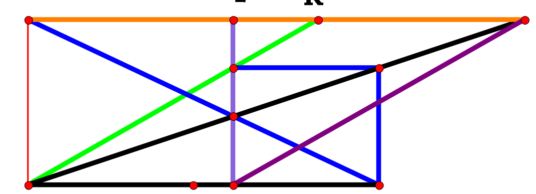
0, 0.	0
1, 0.	$N_1 - 1$
0, 2.	$1 - N_2$
1, 2.	$N_1 - N_2$

$$N_1 - \left(N_2 + ar\right) = 0$$



N_1-(N_2+R) = 0.00000

$$N_2 - \left(N_1 - ar\right) = 0$$



N_2-N_1-R = 0.00000

Basic Arithmetic In Geometry

Multiplication

John 312

N_1 = 2.00000

N_2 = 3.00000

R = 6.00000

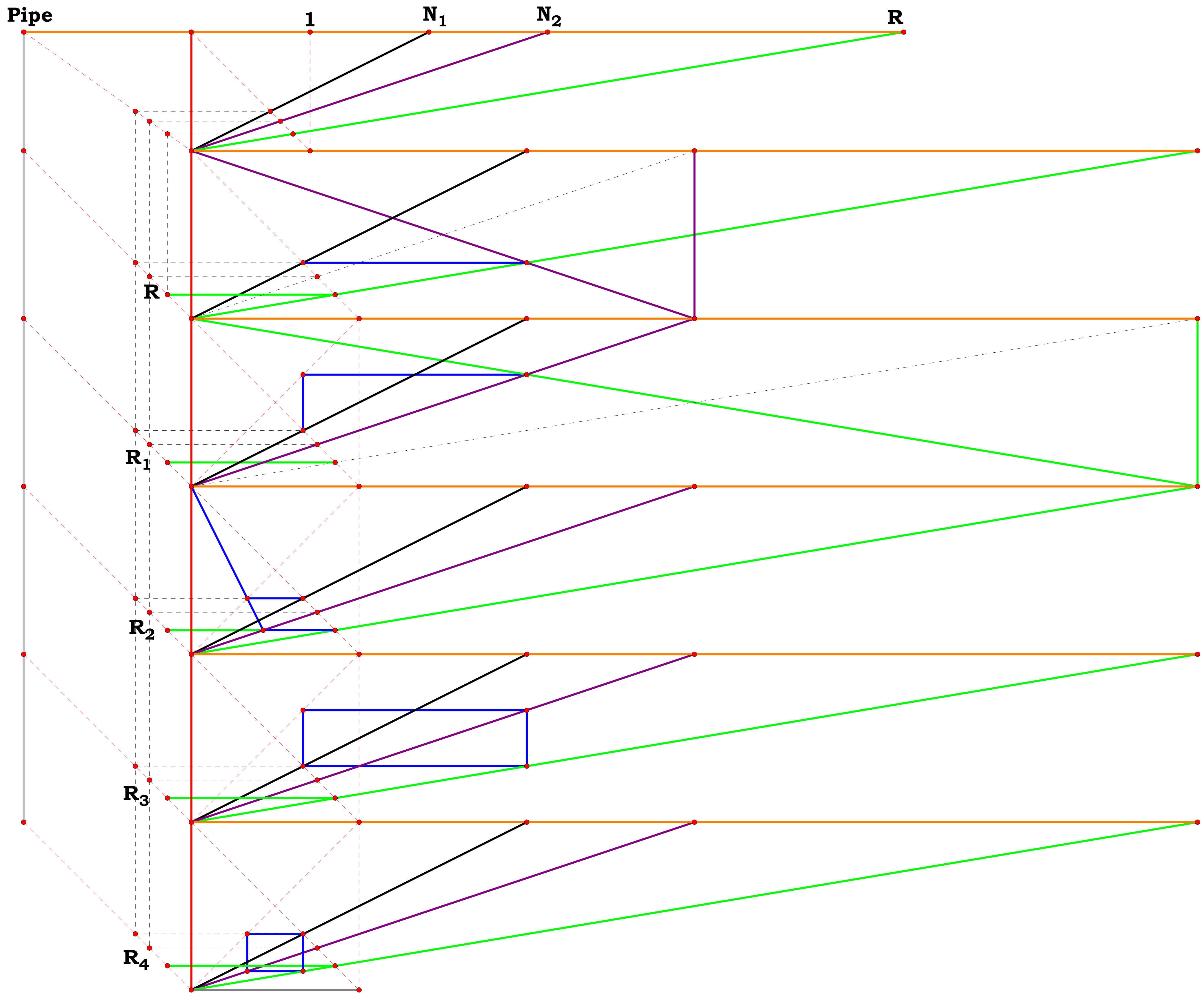
Stub R = -0.20178

Stub R_1 = -0.20178

Stub R_2 = -0.20178

Stub R_3 = -0.20178

Stub R_4 = -0.20178



AE = 2.88 cm

BD = 2.33 cm

BF = 1.62 cm

AC = 4.15 cm

$$\frac{AE}{AC} = 0.69$$

$$\frac{BD}{AC} = 0.56$$

$$\frac{BF}{AC} = 0.39$$

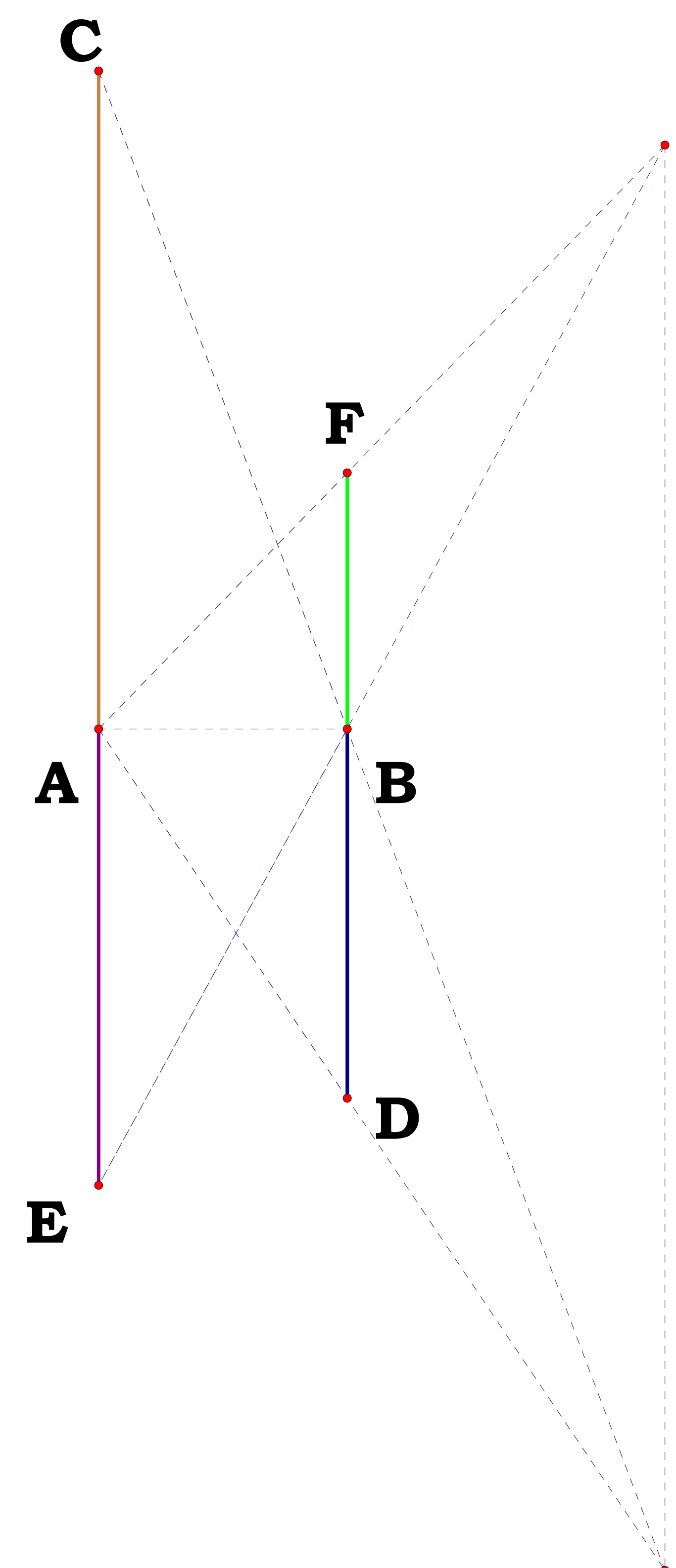
$$\frac{AE}{AC} \cdot \frac{BD}{AC} - \frac{BF}{AC} = 0.00$$

$$\frac{BF}{BD} = 0.69$$

$$\frac{AC}{BD} = 1.78$$

$$\frac{AE}{BD} = 1.24$$

$$\frac{BF}{BD} \cdot \frac{AC}{BD} - \frac{AE}{BD} = 0.00$$



Polar Multiplication

Basic Arithmetic In Geometry

Division

John 312

$N_1 = 3.00000$

$N_2 = 2.00000$

$\frac{N_2}{N_1} = 0.66667$

$R = 0.66667$

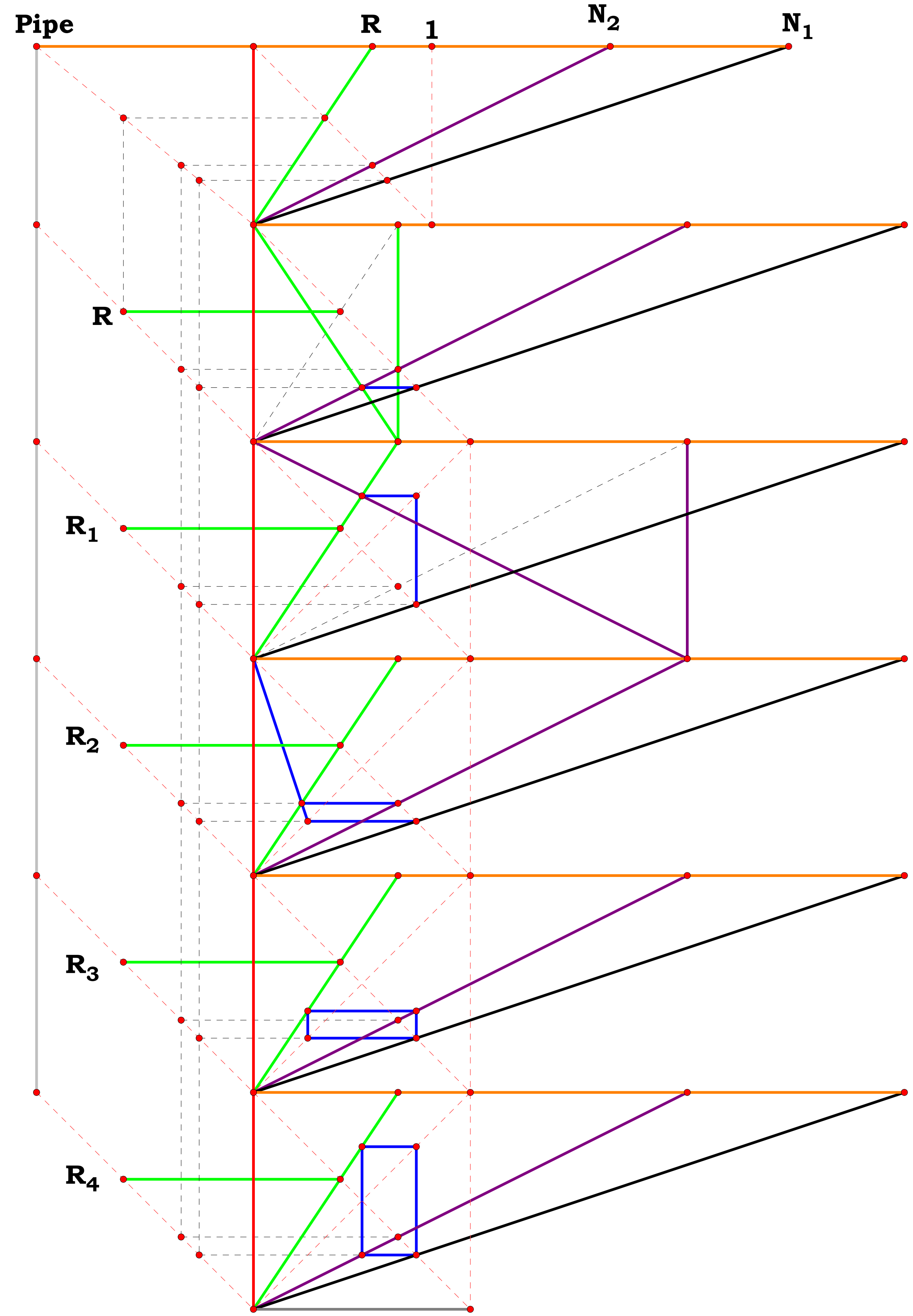
Stub $R = -0.72974$

Stub $R_1 = -0.72974$

Stub $R_2 = -0.72974$

Stub $R_3 = -0.72974$

Stub $R_4 = -0.72974$



Basic Arithmetic In Geometry

Square

John 312

R = -0.14012

R_1 = -0.14012

R_2 = -0.14012

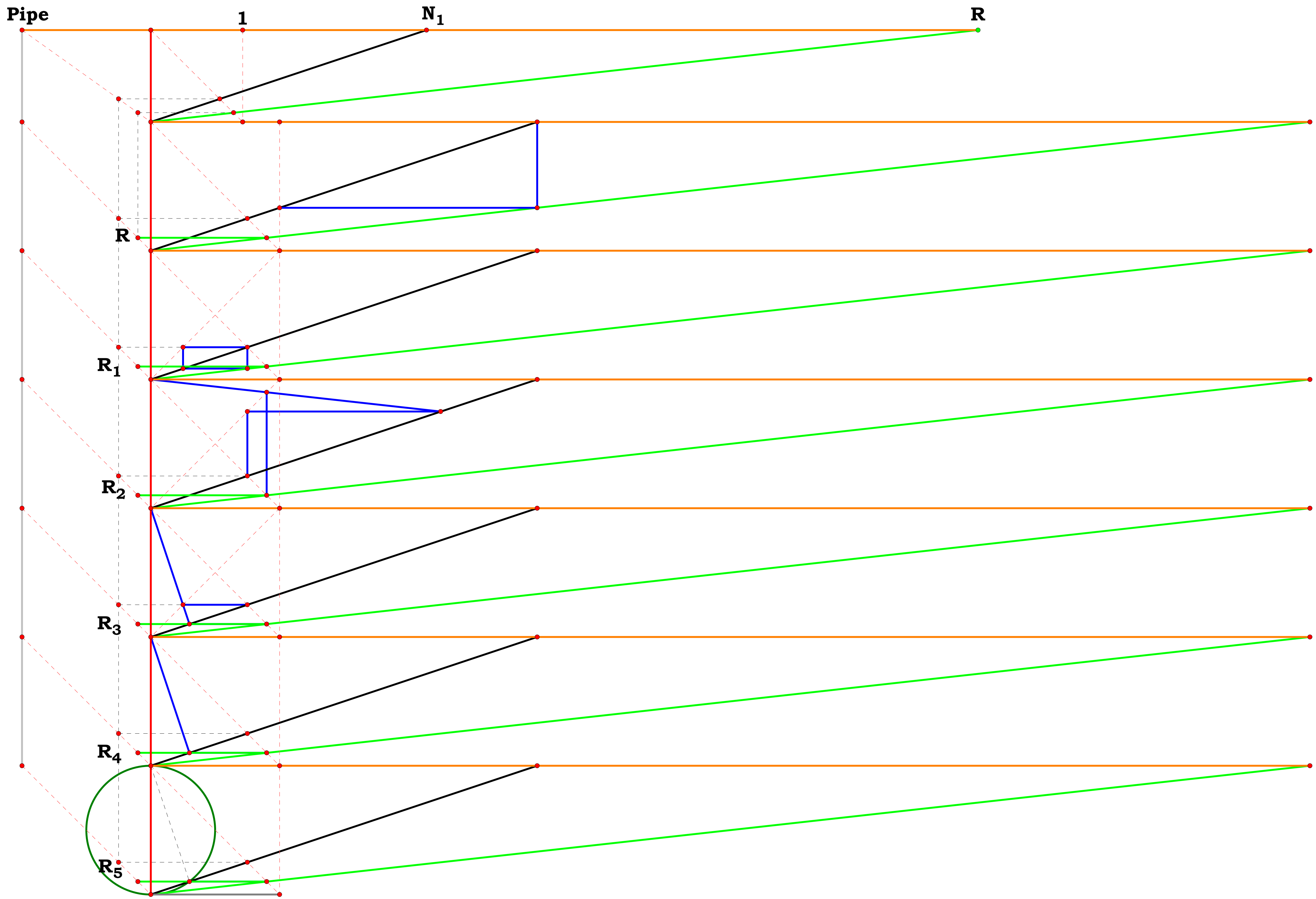
R_3 = -0.14012

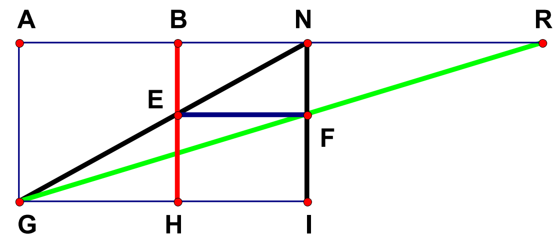
R_4 = -0.14012

R_5 = -0.14012

N_1 = 3.00000

R = 9.00000





Unit.

$AB := 1$

Given.

$AN := 3$

From BAM Sample Dic 1CST1R7

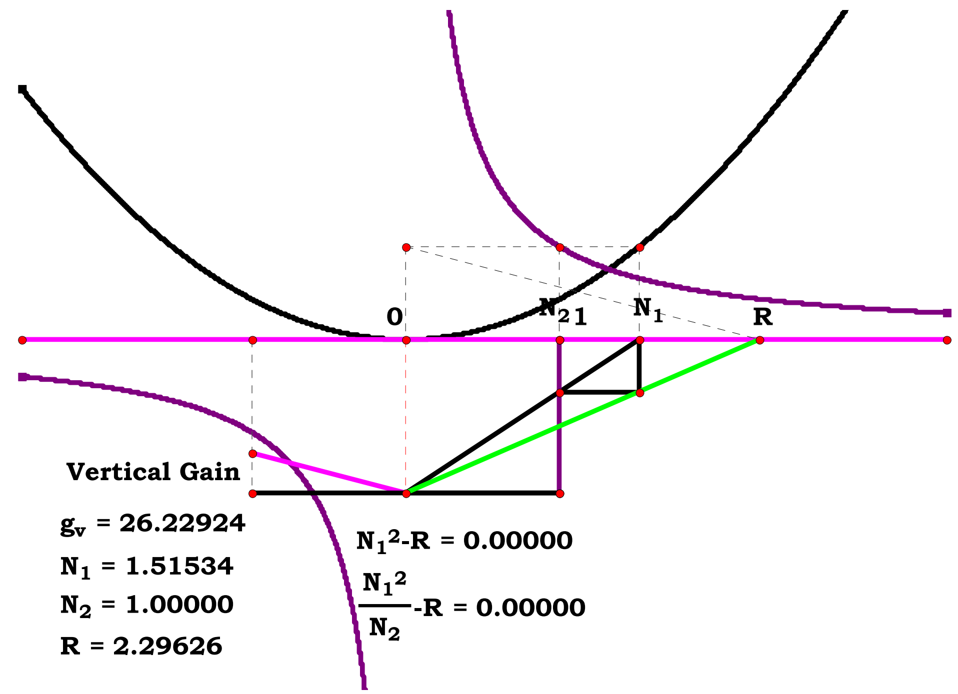
Descriptions.

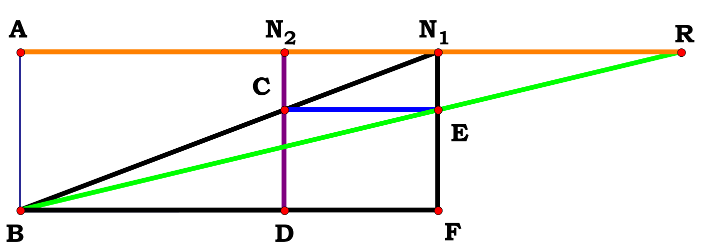
$AG := AB \quad BN := AN - AB \quad BE := \dfrac{AG \cdot BN}{AN}$

$NF := BE \quad FI := AG - NF \quad AR := \dfrac{AN \cdot AG}{FI}$

Definitions.

$BE - \dfrac{AN - 1}{AN} = 0 \quad AR - AN^2 = 0$





$N_1 := 3$

$N_2 := 2$

$ab := 1$

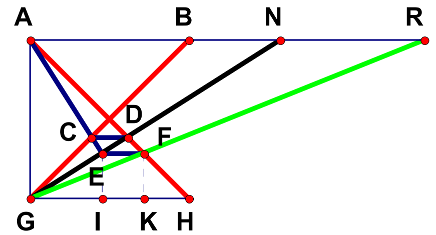
$df := N_1 - N_2 \quad cn := \dfrac{ab \cdot df}{N_1} \quad en := cn \quad ef := ab - cn \quad ar := \dfrac{N_1}{ef}$

Definitions.

$cn - \dfrac{N_1 - N_2}{N_1} = 0 \quad ef - \dfrac{N_2}{N_1} = 0 \quad ar - \dfrac{{N_1}^2}{N_2} = 0$

Two Transforms.

0, 0.	1
1, 0.	${N_1}^2$
0, 2.	$\dfrac{1}{N_2}$
1, 2.	$\dfrac{{N_1}^2}{N_2}$



Unit.

$AB := 1$

Given.

$AN := 3$

From BAM Sample Dic 1CST5R14

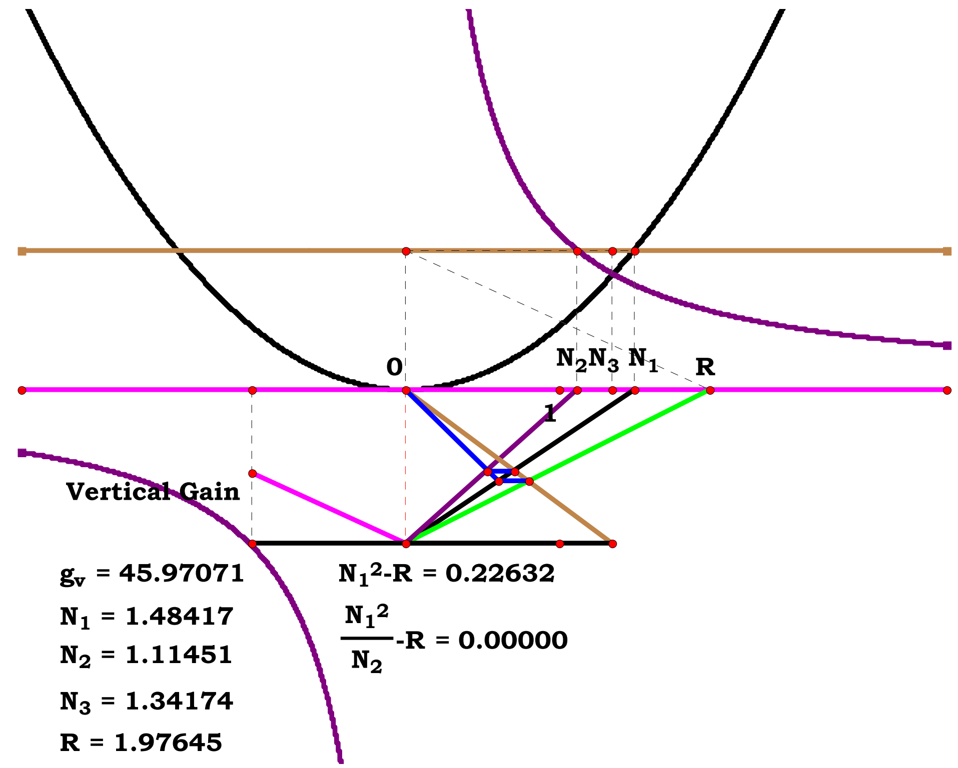
Descriptions.

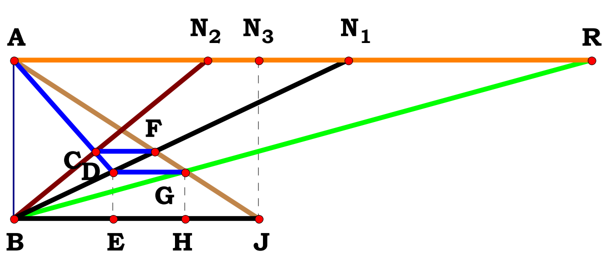
$EI := \dfrac{1}{AN^2 + 1}$ $\quad HK := EI$

$GK := AB - EI$ $\quad AR := \dfrac{GK \cdot AB}{HK}$

Definitions.

$AR - AN^2 = 0$





$N_1 := 5$

$N_2 := 3$

$N_3 := 2$

Three Transforms.

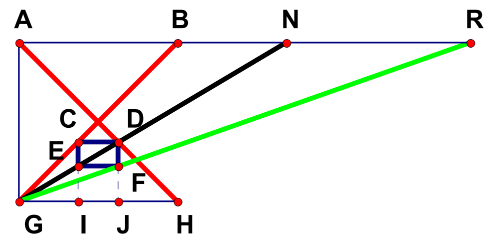
0, 0, 0.	1	1, 2, 0.	$\dfrac{N_1^2}{N_2}$
1, 0, 0.	N_1^2	1, 0, 3.	N_1^2
0, 2, 0.	$\dfrac{1}{N_2}$	0, 2, 3.	$\dfrac{1}{N_2}$
0, 0, 3.	1	1, 2, 3.	$\dfrac{N_1^2}{N_2}$

$de := \dfrac{N_2 \cdot N_3}{N_1^2 + N_2 \cdot N_3}$ $\quad bh := N_3 - N_3 \cdot de$ $\quad ar := \dfrac{bh}{de}$

Descriptions.

$bh - \dfrac{N_1^2 \cdot N_3}{N_1^2 + N_2 \cdot N_3} = 0$ $\quad ar - \dfrac{N_1^2}{N_2} = 0$

From BAM Sample Dic 1CST5R5



Unit.

$AB := 1$

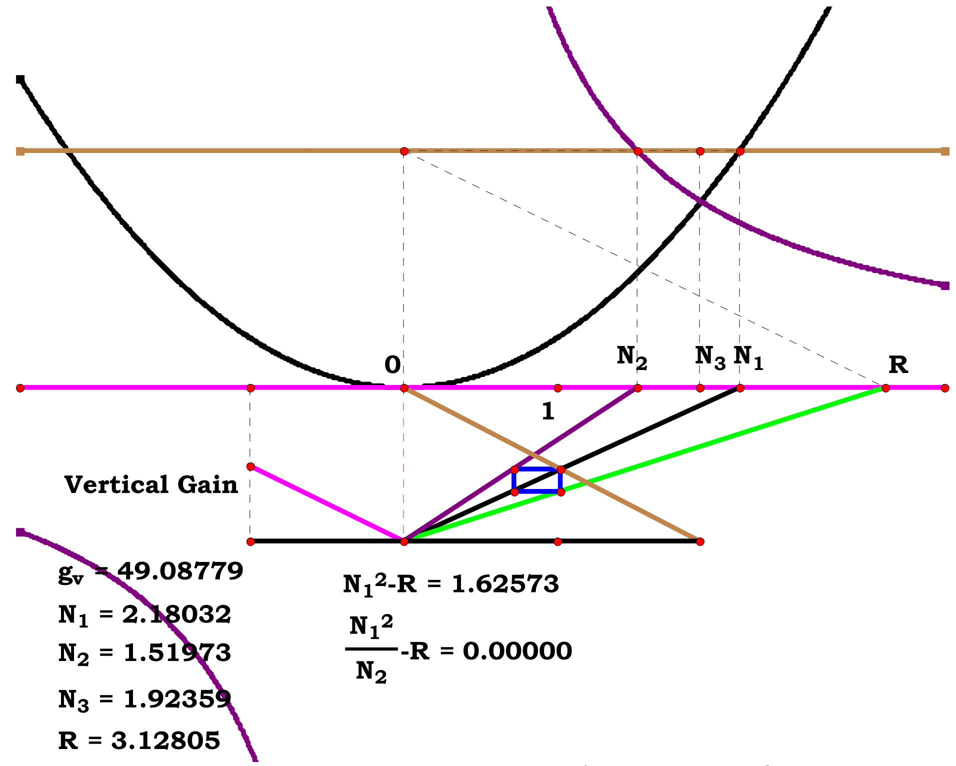
Given.

$AN := 3$

Descriptions.

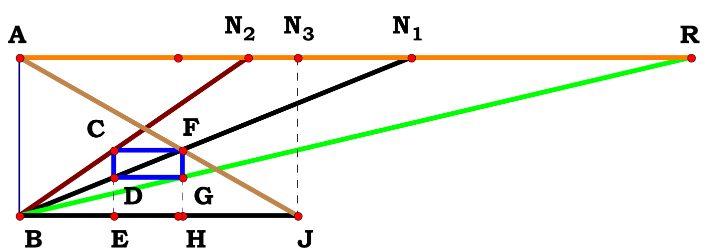
$$GJ := \frac{AB \cdot AN}{AB + AN} \qquad GI := AB - GJ$$

$$EI := \frac{AB \cdot GI}{AN} \qquad AR := \frac{GJ \cdot AB}{EI}$$



Definitions.

$$AR - AN^2 = 0$$



$N_1 := 5$

$N_2 := 3$

$N_3 := 2$

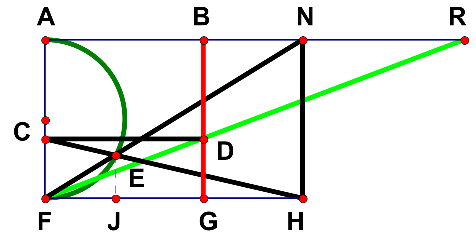
$$fh := \frac{N_3}{N_1 + N_3} \qquad be := N_2 \cdot fh \qquad de := \frac{be}{N_1} \qquad bh := N_1 \cdot fh \qquad ar := \frac{bh}{de}$$

Definitions.

$$be - \frac{N_2 \cdot N_3}{N_1 + N_3} = 0 \qquad de - \frac{N_2 \cdot N_3}{N_1^{\,2} + N_1 \cdot N_3} = 0 \qquad bh - \frac{N_1 \cdot N_3}{N_1 + N_3} = 0 \qquad ar - \frac{N_1^{\,2}}{N_2} = 0$$

Three Transforms.

0, 0, 0.	1	1, 2, 0.	$\frac{N_1^{\,2}}{N_2}$
1, 0, 0.	$N_1^{\,2}$	1, 0, 3.	$N_1^{\,2}$
0, 2, 0.	$\frac{1}{N_2}$	0, 2, 3.	$\frac{1}{N_2}$
0, 0, 3.	1	1, 2, 3.	$\frac{N_1^{\,2}}{N_2}$



Unit.

$AB := 1$

Given.

$AN := 3$

From BAM Sample Dic 2SMT8R9

Descriptions.

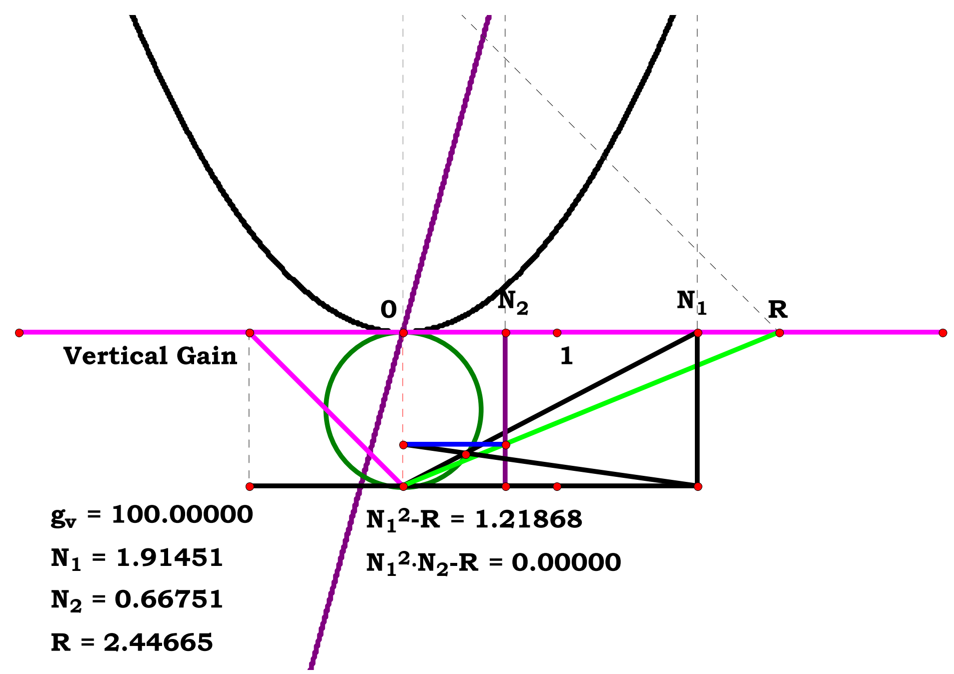
$EJ := \dfrac{1}{AN^2 + 1}$ $\quad FJ := \dfrac{AN}{AN^2 + 1}$

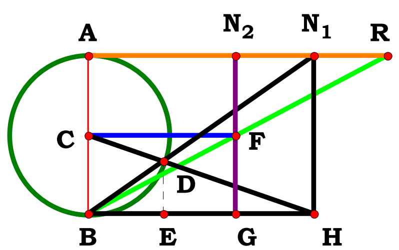
$HJ := AN - FJ$ $\quad CF := \dfrac{EJ \cdot AN}{HJ}$

$DG := CF$ $\quad AR := \dfrac{AB^2}{DG}$

Definitions.

$AR - AN^2 = 0$





$N_1 := 1.5254$

$N_2 := 1.16466$

$ab := 1$ $\quad bn1 := \sqrt{N_1^{\,2} + ab^2}$ $\quad bd := \dfrac{ab^2}{bn1}$ $\quad de := \dfrac{ab \cdot bd}{bn1}$

$be := \dfrac{N_1 \cdot bd}{bn1}$ $\quad bc := \dfrac{de \cdot N_1}{N_1 - be}$ $\quad ar := \dfrac{N_2 \cdot ab}{bc}$

Definitions.

$ar - N_1^{\,2} \cdot N_2 = 0$

Two Transforms.

0, 0.	1
1, 0.	$N_1^{\,2}$
0, 2.	N_2
1, 2.	$N_1^{\,2} \cdot N_2$

Basic Arithmetic In Geometry

Root

John 312

$N_1 = 2.00000$

Square roots? Why not a whole 2N exponential series?

$F = 0.77111$ $\quad N_1^{\frac{-3}{8}} - F = 0.00000$

$G = 0.84090$ $\quad N_1^{\frac{-2}{8}} - G = 0.00000$

$H = 0.91700$ $\quad N_1^{\frac{-1}{8}} - H = 0.00000$

$1 = 1.00000$ $\quad N_1^{\frac{0}{8}} - 1 = 0.00000$

$I = 1.09051$ $\quad N_1^{\frac{1}{8}} - I = 0.00000$

$J = 1.18921$ $\quad N_1^{\frac{2}{8}} - J = 0.00000$

$K = 1.29684$ $\quad N_1^{\frac{3}{8}} - K = 0.00000$

$L = 1.41421$ $\quad N_1^{\frac{4}{8}} - L = 0.00000$

$M = 1.54221$ $\quad N_1^{\frac{5}{8}} - M = 0.00000$

$N = 1.68179$ $\quad N_1^{\frac{6}{8}} - N = 0.00000$

$O = 1.83401$ $\quad N_1^{\frac{7}{8}} - O = 0.00000$

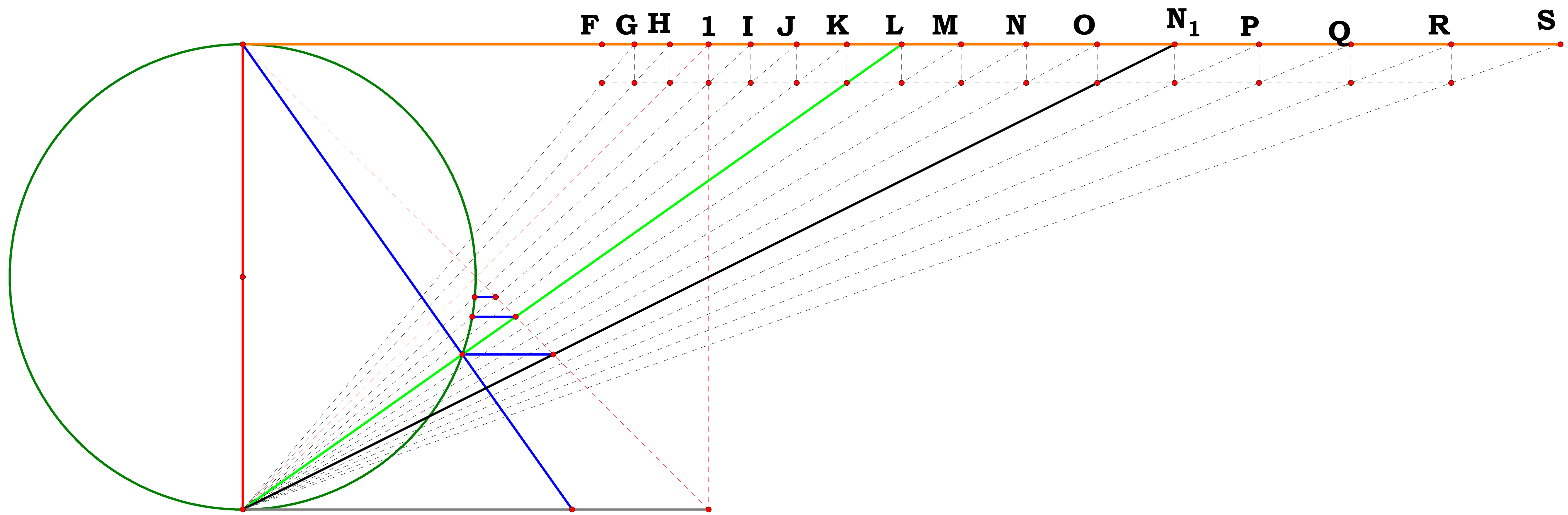
$N_1 = 2.00000$ $\quad N_1^{\frac{8}{8}} - N_1 = 0.00000$

$P = 2.18102$ $\quad N_1^{\frac{9}{8}} - P = 0.00000$

$Q = 2.37841$ $\quad N_1^{\frac{10}{8}} - Q = 0.00000$

$R = 2.59368$ $\quad N_1^{\frac{11}{8}} - R = 0.00000$

$S = 2.82843$ $\quad N_1^{\frac{12}{8}} - S = 0.00000$

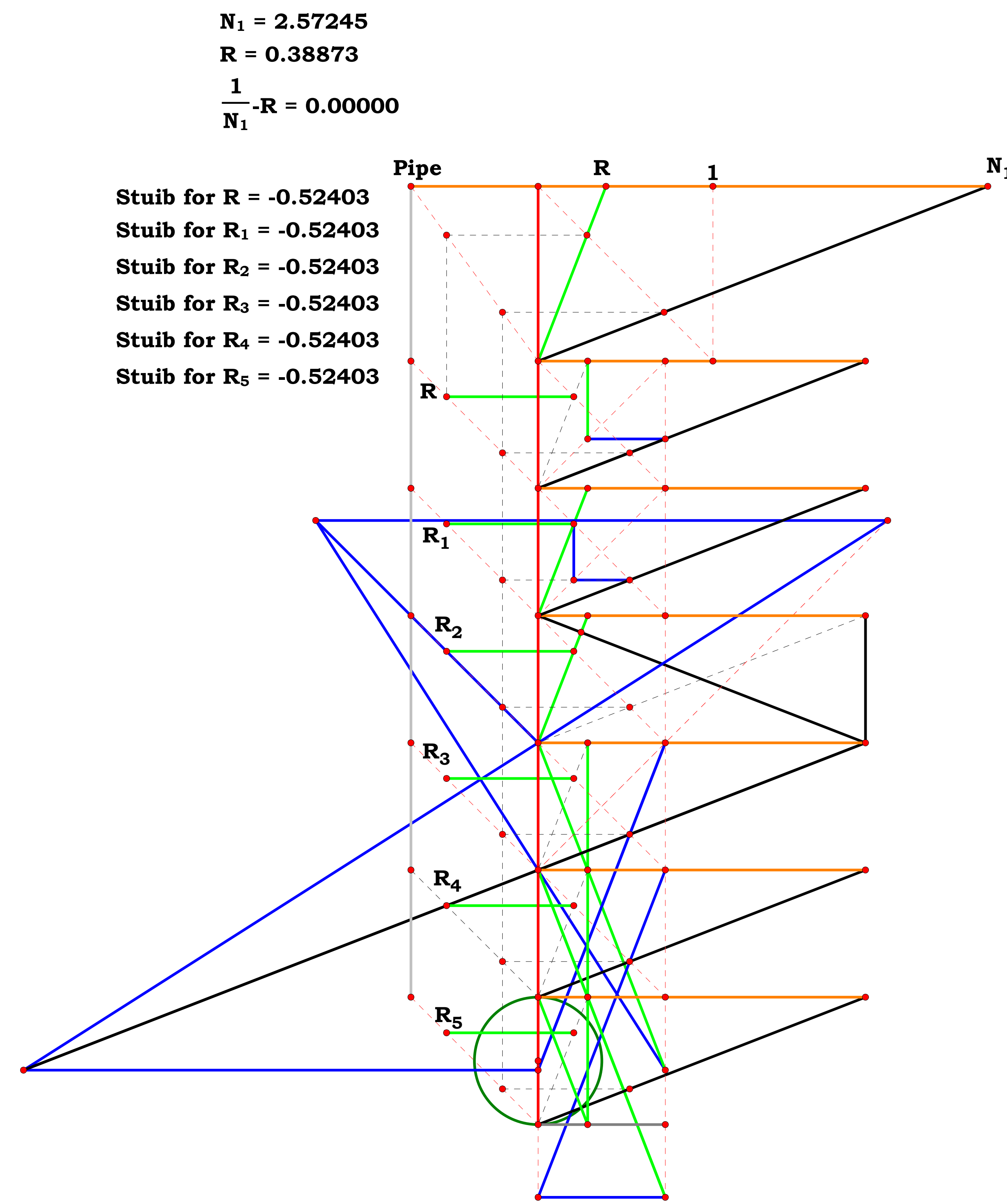


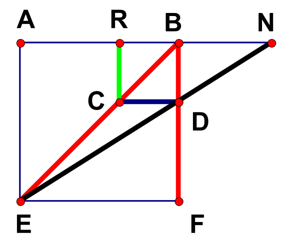
I read a contemporary Algebra Book once and the author claimed that this was not possible, did not exist, in geometry. It is in mine.

Basic Arithmetic In Geometry

Reciprocal

John 312


N₁ = 2.57245
R = 0.38873
1/N₁-R = 0.00000
Stuib for R = -0.52403
Stuib for R₁ = -0.52403
Stuib for R₂ = -0.52403
Stuib for R₃ = -0.52403
Stuib for R₄ = -0.52403
Stuib for R₅ = -0.52403
Pipe
R
1
N₁
R
R₁
R₂
R₃
R₄
R₅



Unit.

$AB := 1$

Given.

$AN := 3$

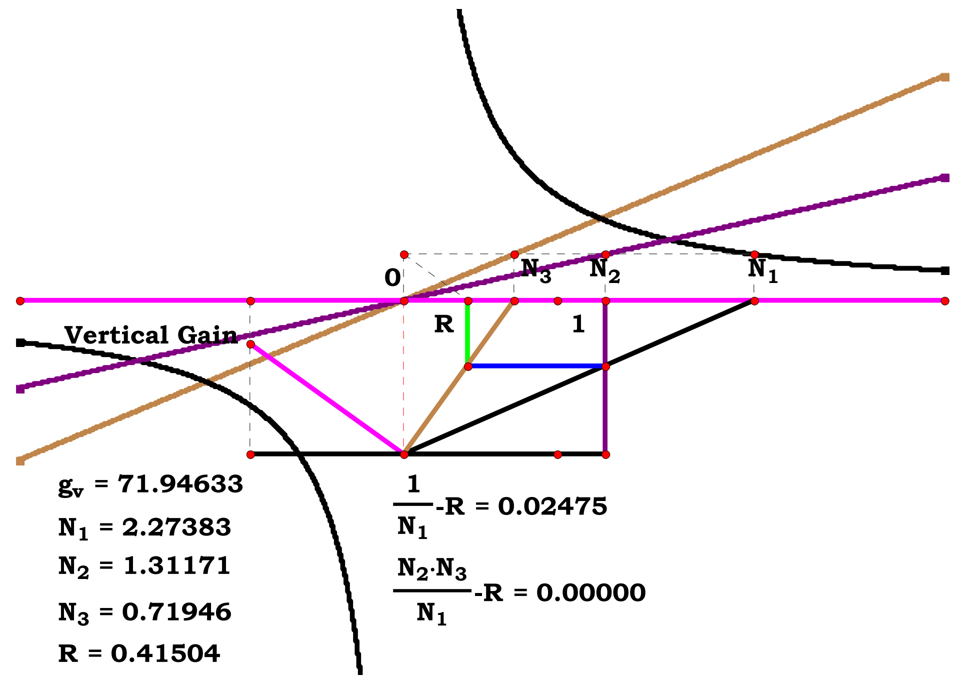
From BAM Sample Dic 1CST3R0

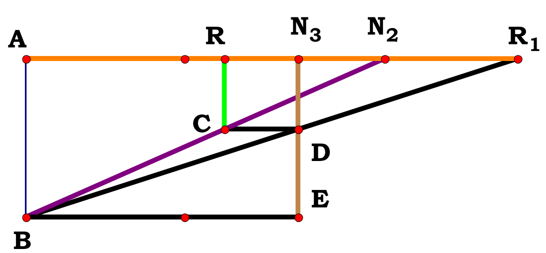
Descriptions.

$BD := \frac{AN - 1}{AN}$ $\quad AR := AB - BD$

Definitions.

$AR - \frac{1}{AN} = 0 \qquad AR - AN^{-1} = 0$





$N_1 := 4$

$N_2 := 3$

$N_3 := 2$

Three Transforms.

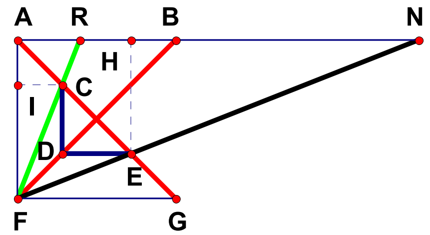
0, 0, 0.	1	1, 2, 0.	$\frac{N_2}{N_1}$
1, 0, 0.	$\frac{1}{N_1}$	1, 0, 3.	$\frac{N_3}{N_1}$
0, 2, 0.	N_2	0, 2, 3.	$N_2 \cdot N_3$
0, 0, 3.	N_3	1, 2, 3.	$N_2 \cdot \frac{N_3}{N_1}$

$ab := 1 \qquad de := \frac{N_3}{N_1} \qquad cr := ab - de$

$rn2 := \frac{N_2 \cdot cr}{ab} \qquad ar := N_2 - rn2$

Definitions.

$cr - \frac{N_1 - N_3}{N_1} = 0 \qquad ar - N_2 \cdot \frac{N_3}{N_1} = 0$



Unit.

$AB := 1$

Given.

$AN := 3$

From BAM Sample Dic 1CST5R2

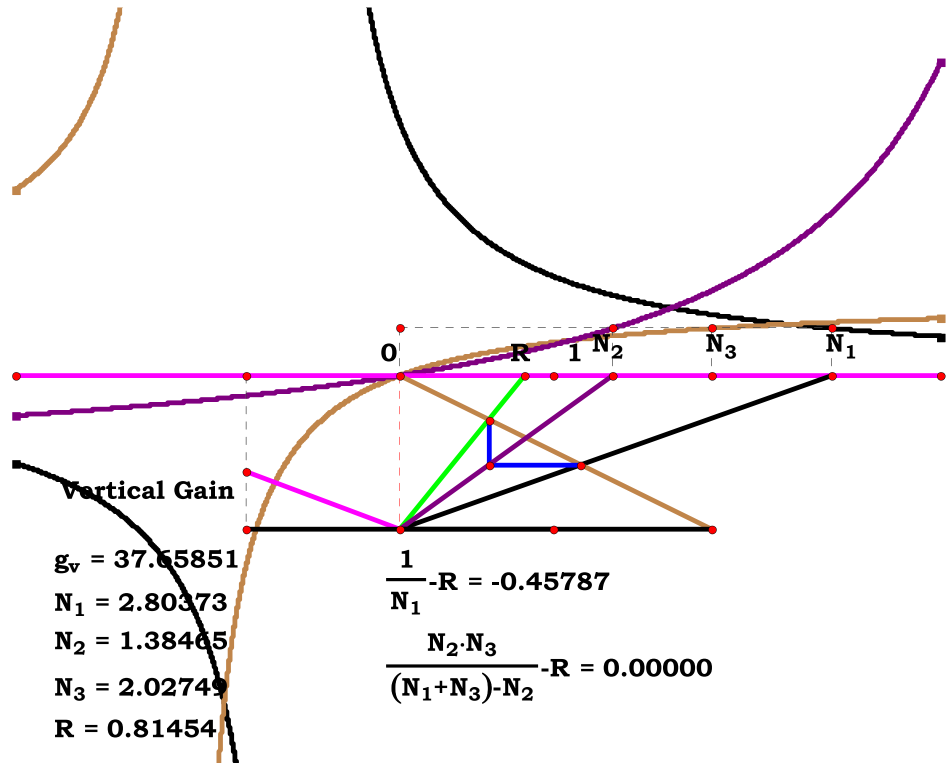
Descriptions.

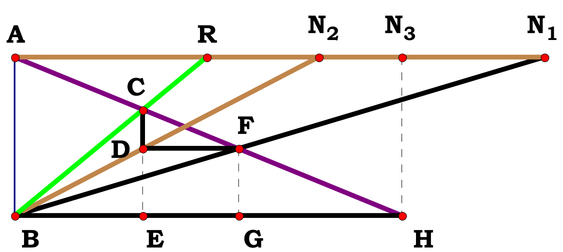
$$AH := \frac{AB \cdot AN}{AB + AN} \quad BH := AB - AH \quad CI := BH$$

$$FI := AH \qquad AR := \frac{CI \cdot AB}{FI}$$

Definitions.

$$AR - \frac{1}{AN} = 0$$





$N_1 := 7$

$N_2 := 3$

$N_3 := 2$

$$fg := \frac{N_3}{N_1 + N_3} \quad be := N_2 \cdot fg \quad eh := N_3 - be \quad ce := \frac{eh}{N_3} \quad ar := \frac{be}{ce}$$

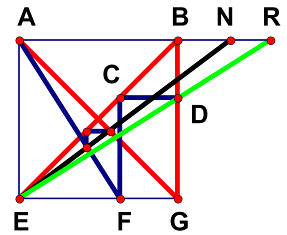
Definitions.

$$be - \frac{N_2 \cdot N_3}{N_1 + N_3} = 0 \qquad eh - \frac{N_1 \cdot N_3 + N_3^{\,2} - N_2 \cdot N_3}{N_1 + N_3} = 0$$

$$ce - \frac{N_1 + N_3 - N_2}{N_1 + N_3} = 0 \qquad ar - \frac{N_2 \cdot N_3}{N_1 + N_3 - N_2} = 0$$

Three Transforms.

0, 0, 0.	1	1, 2, 0.	$\frac{N_2}{N_1 - N_2 + 1}$
1, 0, 0.	$\frac{1}{N_1}$	1, 0, 3.	$\frac{N_3}{N_1 + N_3 - 1}$
0, 2, 0.	$-\frac{N_2}{N_2 - 2}$	0, 2, 3.	$\frac{N_2 \cdot N_3}{N_3 - N_2 + 1}$
0, 0, 3.	1	1, 2, 3.	$\frac{N_2 \cdot N_3}{N_1 + N_3 - N_2}$



Unit.

$AB := 1$

Given.

$AN := 3$

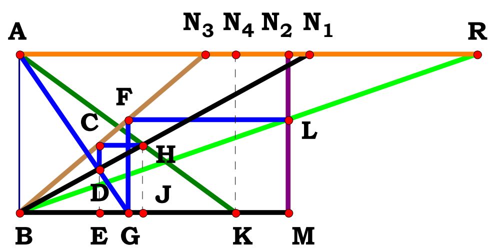
From BAM Sample Dic 1CST6R2

Descriptions.

$$EF := \frac{AN}{AN^2 + AN - 1} \qquad BD := AB - EF \qquad AR := \frac{AB^2}{EF}$$

Definitions.

$$AR - \frac{AN^2 + AN - 1}{AN} = 0$$



$N_1 := 5$

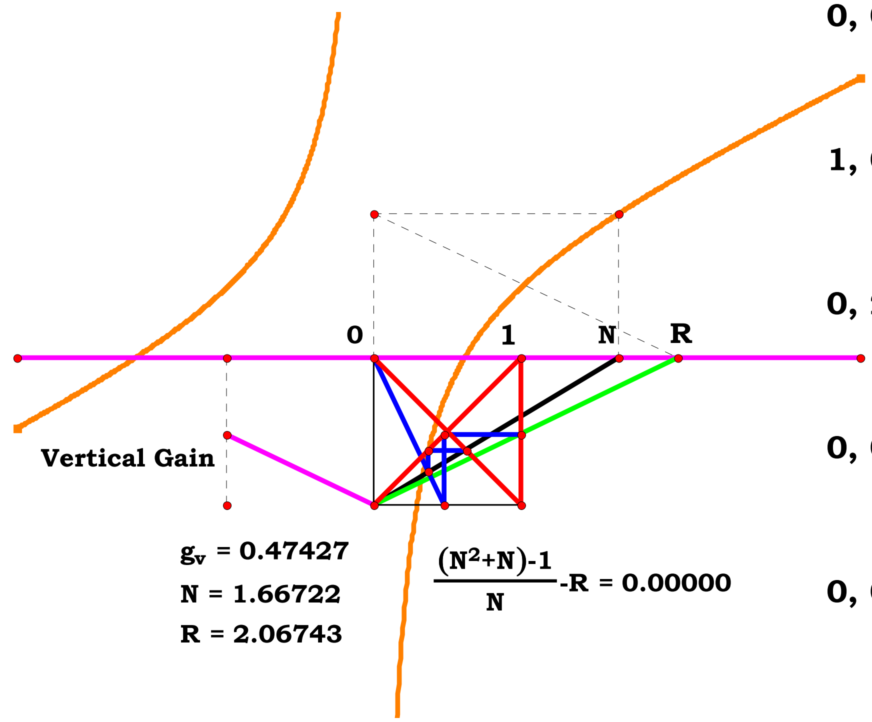
$N_3 := 3$

$N_2 := 4$

$N_4 := 2$

$$hj := \frac{N_4}{N_1 + N_4} \qquad be := N_3 \cdot hj \qquad de := \frac{be}{N_1}$$

$$bg := \frac{be}{1 - de} \qquad fg := \frac{bg}{N_3} \qquad ar := \frac{N_2}{fg}$$



Definitions.

$$be - \frac{N_3 \cdot N_4}{N_1 + N_4} = 0 \qquad de - \frac{N_3 \cdot N_4}{N_1^2 + N_4 \cdot N_1} = 0 \qquad bg - \frac{N_1 \cdot N_3 \cdot N_4}{N_1^2 + N_1 \cdot N_4 - N_3 \cdot N_4} = 0$$

$$fg - \frac{N_1 \cdot N_4}{N_1^2 + N_1 \cdot N_4 - N_3 \cdot N_4} = 0 \qquad ar - \frac{N_1^2 \cdot N_2 + N_1 \cdot N_2 \cdot N_4 - N_2 \cdot N_3 \cdot N_4}{N_1 \cdot N_4} = 0$$

Four Transforms.

0, 0, 0, 0. 1

1, 0, 0, 0. $\frac{N_1^2 + N_1 - 1}{N_1}$

0, 2, 0, 0. N_2

0, 0, 3, 0. $2 - N_3$

0, 0, 0, 4. $\frac{1}{N_4}$

1, 2, 0, 0. $\frac{N_2 \cdot \left(N_1^2 + N_1 - 1\right)}{N_1}$

1, 0, 3, 0. $\frac{N_1^2 + N_1 - N_3}{N_1}$

1, 0, 0, 4. $\frac{N_1^2 + N_4 \cdot N_1 - N_4}{N_1 \cdot N_4}$

0, 2, 3, 0. $2 \cdot N_2 - N_2 \cdot N_3$

0, 2, 0, 4. $\frac{N_2}{N_4}$

0, 0, 3, 4. $\frac{N_4 - N_3 \cdot N_4 + 1}{N_4}$

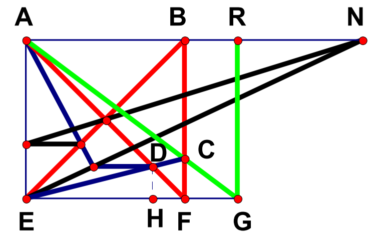
1, 2, 3, 0. $\frac{N_2 \cdot \left(N_1^2 + N_1 - N_3\right)}{N_1}$

1, 0, 3, 4. $\frac{N_1^2 + N_4 \cdot N_1 - N_3 \cdot N_4}{N_1 \cdot N_4}$

0, 2, 3, 4. $\frac{N_2 + N_2 \cdot N_4 - N_2 \cdot N_3 \cdot N_4}{N_4}$

1, 2, 0, 4. $\frac{N_2 \cdot \left(N_1^2 + N_4 \cdot N_1 - N_4\right)}{N_1 \cdot N_4}$

1, 2, 3, 4. $\frac{N_1^2 \cdot N_2 + N_1 \cdot N_2 \cdot N_4 - N_2 \cdot N_3 \cdot N_4}{N_1 \cdot N_4}$



Unit.

$AB := 1$

Given.

$AN := -3$

From BAM Sample Dic 1CST7R7

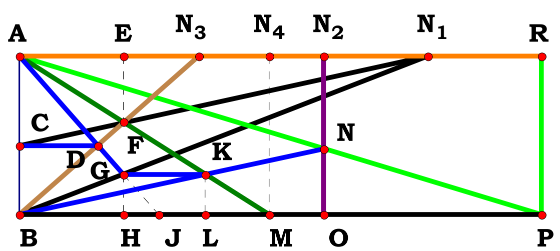
Descriptions.

$$DH := \frac{AN - 1}{AN^2 + AN - 1} \quad EH := AB - DH \quad CF := \frac{DH \cdot AB}{EH} \quad BC := AB - CF$$

$$EG := \frac{AB^2}{BC} \quad AR := EG$$

Definitions.

$$AR - \frac{AN^2}{AN^2 - AN + 1} = 0$$

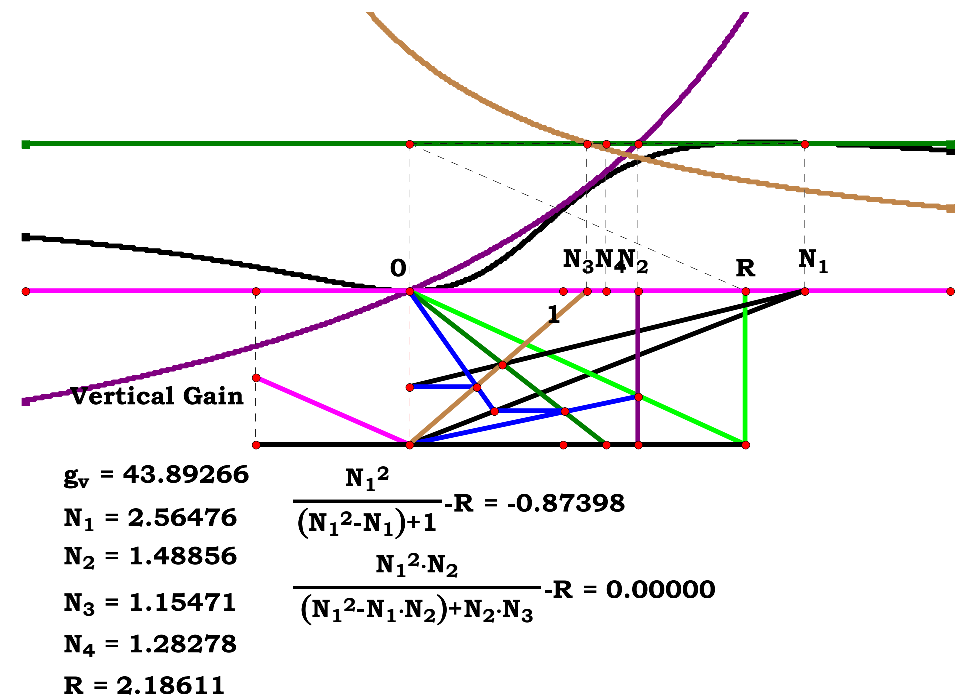


$N_1 := 5$

$N_2 := 4$

$N_3 := 3$

$N_4 := 2$



$$ef := \frac{N_3}{N_3 + N_4} \quad ae := N_4 \cdot ef \quad ac := \frac{ef \cdot N_1}{N_1 - ae} \quad cd := N_3 - N_3 \cdot ac \quad bj := \frac{cd}{ac} \quad gh := \frac{bj}{N_1 + bj} \quad bl := N_4 - N_4 \cdot gh \quad no := \frac{gh \cdot N_2}{bl} \quad ar := \frac{N_2}{1 - no}$$

Definitions.

$$ae - \frac{N_3 \cdot N_4}{N_3 + N_4} = 0 \quad ac - \frac{N_1 \cdot N_3}{N_1 \cdot N_3 + N_1 \cdot N_4 - N_3 \cdot N_4} = 0 \quad cd - \frac{N_1 \cdot N_3 \cdot N_4 - N_3^2 \cdot N_4}{N_1 \cdot N_3 + N_1 \cdot N_4 - N_3 \cdot N_4} = 0 \quad bj - \frac{N_1 \cdot N_4 - N_3 \cdot N_4}{N_1} = 0$$

$$gh - \frac{N_1 \cdot N_4 - N_3 \cdot N_4}{N_1^2 + N_1 \cdot N_4 - N_3 \cdot N_4} = 0 \quad bl - \frac{N_1^2 \cdot N_4}{N_1^2 + N_1 \cdot N_4 - N_3 \cdot N_4} = 0 \quad no - \frac{N_1 \cdot N_2 - N_2 \cdot N_3}{N_1^2} = 0 \quad ar - \frac{N_1^2 \cdot N_2}{N_1^2 - N_1 \cdot N_2 + N_2 \cdot N_3} = 0$$

Four Transforms.

0, 0, 0, 0. 1

1, 0, 0, 0. $\dfrac{N_1^{\,2}}{N_1^{\,2} - N_1 + 1}$

0, 2, 0, 0. N_2

0, 0, 3, 0. $\dfrac{1}{N_3}$

0, 0, 0, 4. 1

1, 2, 0, 0. $\dfrac{N_1^{\,2}\cdot N_2}{N_1^{\,2} - N_2\cdot N_1 + N_2}$

1, 0, 3, 0. $\dfrac{N_1^{\,2}}{N_1^{\,2} - N_1 + N_3}$

1, 0, 0, 4. $\dfrac{N_1^{\,2}}{N_1^{\,2} - N_1 + 1}$

0, 2, 3, 0. $\dfrac{N_2}{N_2\cdot N_3 - N_2 + 1}$

0, 2, 0, 4. N_2

0, 0, 3, 4. $\dfrac{1}{N_3}$

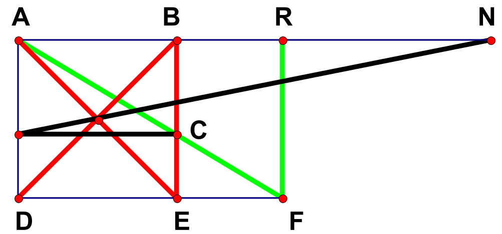
1, 2, 3, 0. $\dfrac{N_1^{\,2}\cdot N_2}{N_1^{\,2} - N_1\cdot N_2 + N_2\cdot N_3}$

1, 0, 3, 4. $\dfrac{N_1^{\,2}}{N_1^{\,2} - N_1 + N_3}$

0, 2, 3, 4. $\dfrac{N_2}{N_2\cdot N_3 - N_2 + 1}$

1, 2, 0, 4. $\dfrac{N_1^{\,2}\cdot N_2}{N_1^{\,2} - N_2\cdot N_1 + N_2}$

1, 2, 3, 4. $\dfrac{N_1^{\,2}\cdot N_2}{N_1^{\,2} - N_1\cdot N_2 + N_2\cdot N_3}$



Unit.

$AB := 1$

Given.

$AN := 3$

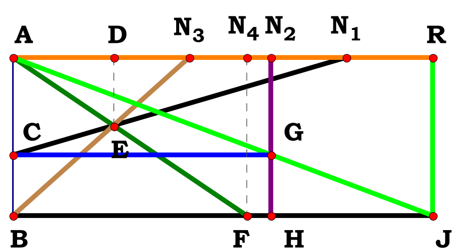
From BAM Sample Dic 1CST7R8

Descriptions.

$$BC := \frac{AN}{2 \cdot AN - 1} \qquad DF := \frac{AB^2}{BC} \qquad AR := DF$$

Definitions.

$$AR - \frac{2AN - 1}{AN} = 0$$

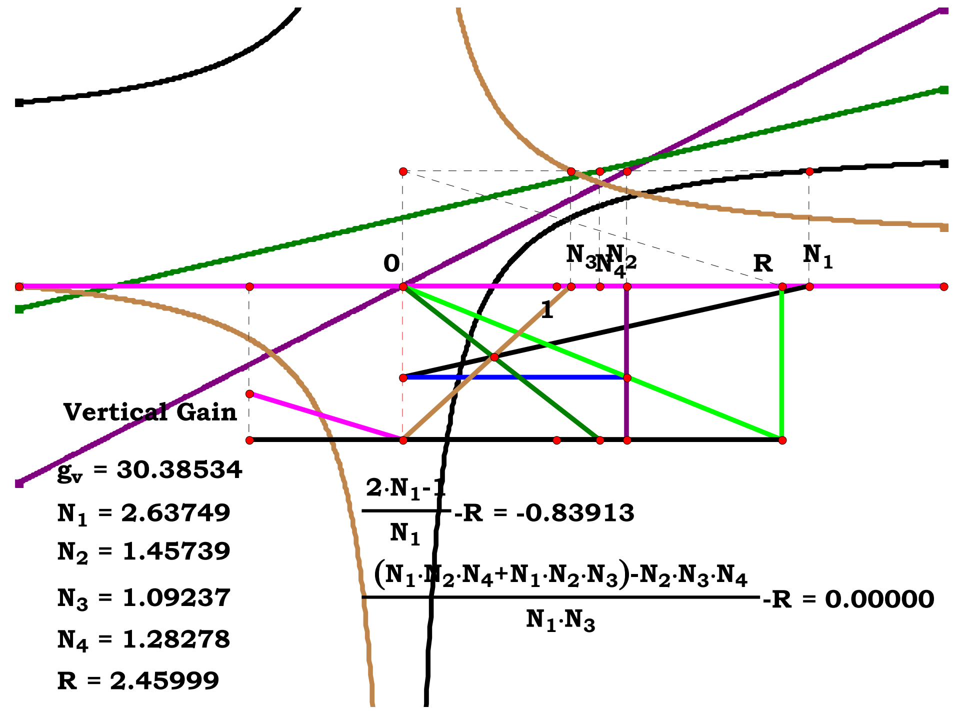


$N_1 := 5$

$N_2 := 4$

$N_3 := 3$

$N_4 := 2$



$$de := \frac{N_3}{N_3 + N_4} \qquad ad := N_4 \cdot de \qquad ac := \frac{de \cdot N_1}{N_1 - ad} \qquad ar := \frac{N_2}{ac}$$

Definitions.

$$ad - \frac{N_3 \cdot N_4}{N_3 + N_4} = 0 \qquad ac - \frac{N_1 \cdot N_3}{N_1 \cdot N_3 + N_1 \cdot N_4 - N_3 \cdot N_4} = 0 \qquad ar - \frac{N_1 \cdot N_2 \cdot N_3 + N_1 \cdot N_2 \cdot N_4 - N_2 \cdot N_3 \cdot N_4}{N_1 \cdot N_3} = 0$$

Four Transforms.

0, 0, 0, 0. 1

1, 0, 0, 0. $\dfrac{2 \cdot N_1 - 1}{N_1}$

0, 2, 0, 0. N_2

0, 0, 3, 0. $\dfrac{1}{N_3}$

0, 0, 0, 4. 1

1, 2, 0, 0. $\dfrac{2 \cdot N_1 \cdot N_2 - N_2}{N_1}$

1, 0, 3, 0. $\dfrac{N_1 - N_3 + N_1 \cdot N_3}{N_1 \cdot N_3}$

1, 0, 0, 4. $\dfrac{N_1 - N_4 + N_1 \cdot N_4}{N_1}$

0, 2, 3, 0. $\dfrac{N_2}{N_3}$

0, 2, 0, 4. N_2

0, 0, 3, 4. $\dfrac{N_3 + N_4 - N_3 \cdot N_4}{N_3}$

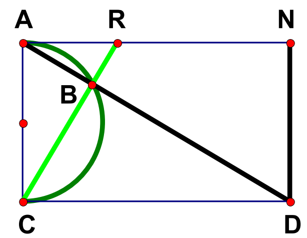
1, 2, 3, 0. $\dfrac{N_1 \cdot N_2 - N_2 \cdot N_3 + N_1 \cdot N_2 \cdot N_3}{N_1 \cdot N_3}$

1, 0, 3, 4. $\dfrac{N_1 \cdot N_3 + N_1 \cdot N_4 - N_3 \cdot N_4}{N_1 \cdot N_3}$

0, 2, 3, 4. $\dfrac{N_2 \cdot N_3 + N_2 \cdot N_4 - N_2 \cdot N_3 \cdot N_4}{N_3}$

1, 2, 0, 4. $\dfrac{N_1 \cdot N_2 - N_2 \cdot N_4 + N_1 \cdot N_2 \cdot N_4}{N_1}$

1, 2, 3, 4. $\dfrac{N_1 \cdot N_2 \cdot N_3 + N_1 \cdot N_2 \cdot N_4 - N_2 \cdot N_3 \cdot N_4}{N_1 \cdot N_3}$



Unit.

$AC := 1$

Given.

$AN := 13$

From BAM Sample Dic 2SMT1R3

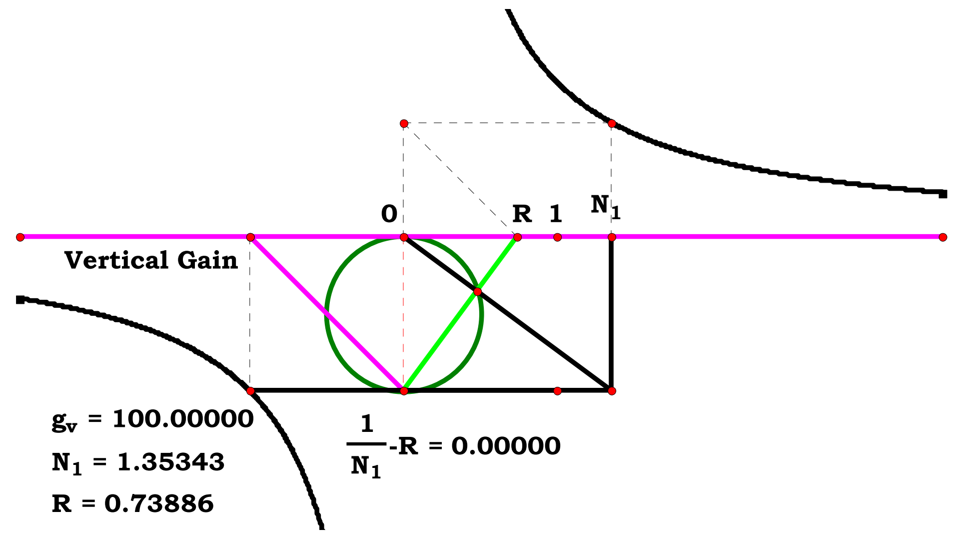
Descriptions.

$$AB := \frac{1}{\left(AN^2 + 1\right)^{\frac{1}{2}}} \qquad AD := \sqrt{AN^2 + AC^2}$$

$$AR := \frac{AD \cdot AB}{AN}$$

Definitions.

$$AR - \frac{1}{AN} = 0$$



03 Recursionn

John 312

Fractional Series Introduction 1

As the first page of the original Series Introduction was a title page with no figure on it, I have decided to do, now, what I did not do, then. This will be a 9 figure series of simple single variable plates helping to learning how to manipulate a universal naming convention making it particular to particular circumstances and particular things while maintaining the given original linguistic concepts.

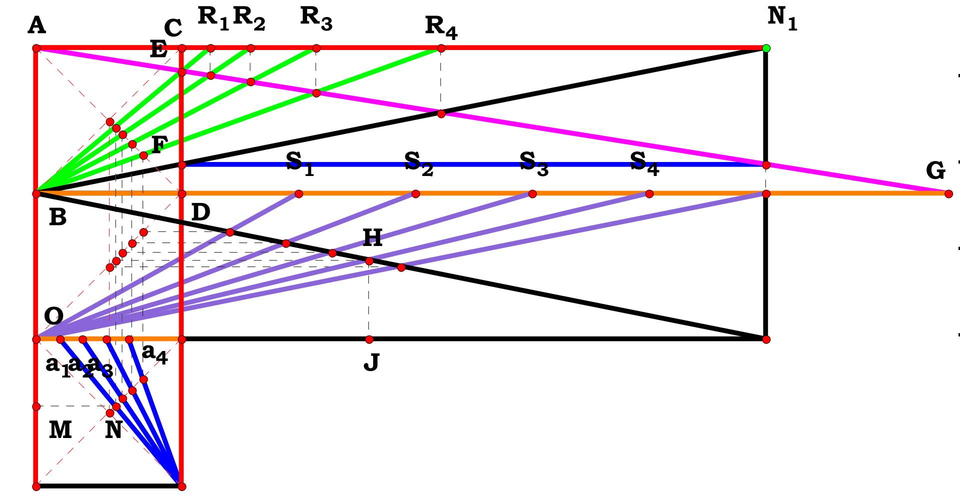
Each of these plates teaches one how, starting from a given unit, to count or enumerate using an extended naming convention defined by the figure itself.

In short, we learn how to enumerate, or count, we learn the basic operations, and then we learn to combine the two to fabricate enumerating systems for particular situations using the given Universal Linguistic Concepts.

Do not forget to read the concluding remarks at the end of the series.

figure 1.

$N_1 = 5.00000$
$R_1 = 1.19048$
$R_2 = 1.47059$
$R_3 = 1.92308$
$R_4 = 2.77778$
$S_1 = 1.80000$
$S_2 = 2.60000$
$S_3 = 3.40000$
$S_4 = 4.20000$
$a_1 = 0.16000$
$a_2 = 0.32000$
$a_3 = 0.48000$
$a_4 = 0.64000$



$\frac{N_1}{R_1} = 4.20000$ $\frac{N_1}{S_1} = 2.77778$ $\frac{N_1}{a_1} = 31.25000$

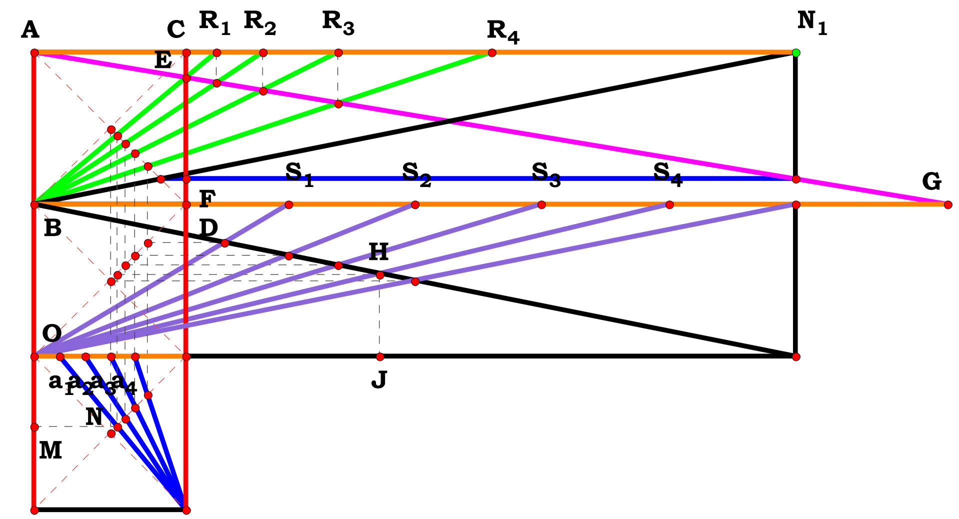
$\frac{N_1}{R_2} = 3.40000$ $\frac{N_1}{S_2} = 1.92308$ $\frac{N_1}{a_2} = 15.62500$

$\frac{N_1}{R_3} = 2.60000$ $\frac{N_1}{S_3} = 1.47059$ $\frac{N_1}{a_3} = 10.41667$

$\frac{N_1}{R_4} = 1.80000$ $\frac{N_1}{S_4} = 1.19048$ $\frac{N_1}{a_4} = 7.81250$

figure 4.

$N_1 = 5.00000$
$R_1 = 1.20000$
$R_2 = 1.50000$
$R_3 = 2.00000$
$R_4 = 3.00000$
$S_1 = 1.66667$
$S_2 = 2.50000$
$S_3 = 3.33333$
$S_4 = 4.16667$
$a_1 = 0.16667$
$a_2 = 0.33333$
$a_3 = 0.50000$
$a_4 = 0.66667$



$\frac{N_1}{R_1} = 4.16667$ $\frac{N_1}{S_1} = 3.00000$ $\frac{N_1}{a_1} = 30.00000$

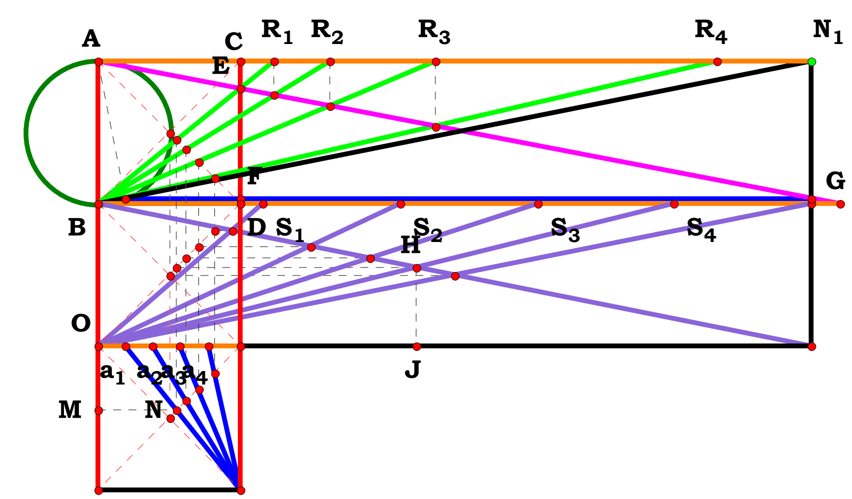
$\frac{N_1}{R_2} = 3.33333$ $\frac{N_1}{S_2} = 2.00000$ $\frac{N_1}{a_2} = 15.00000$

$\frac{N_1}{R_3} = 2.50000$ $\frac{N_1}{S_3} = 1.50000$ $\frac{N_1}{a_3} = 10.00000$

$\frac{N_1}{R_4} = 1.66667$ $\frac{N_1}{S_4} = 1.20000$ $\frac{N_1}{a_4} = 7.50000$

figure 7.

$N_1 = 5.00000$
$R_1 = 1.23810$
$R_2 = 1.62500$
$R_3 = 2.36364$
$R_4 = 4.33333$
$S_1 = 1.15385$
$S_2 = 2.11538$
$S_3 = 3.07692$
$S_4 = 4.03846$
$a_1 = 0.19231$
$a_2 = 0.38462$
$a_3 = 0.57692$
$a_4 = 0.76923$



$\frac{N_1}{R_1} = 4.03846$ $\frac{N_1}{S_1} = 4.33333$ $\frac{N_1}{a_1} = 26.00000$

$\frac{N_1}{R_2} = 3.07692$ $\frac{N_1}{S_2} = 2.36364$ $\frac{N_1}{a_2} = 13.00000$

$\frac{N_1}{R_3} = 2.11538$ $\frac{N_1}{S_3} = 1.62500$ $\frac{N_1}{a_3} = 8.66667$

$\frac{N_1}{R_4} = 1.15385$ $\frac{N_1}{S_2} = 2.36364$ $\frac{N_1}{a_4} = 6.50000$

Figure 1, 2 and 3.

$AB := 1$

$N_1 := 5$

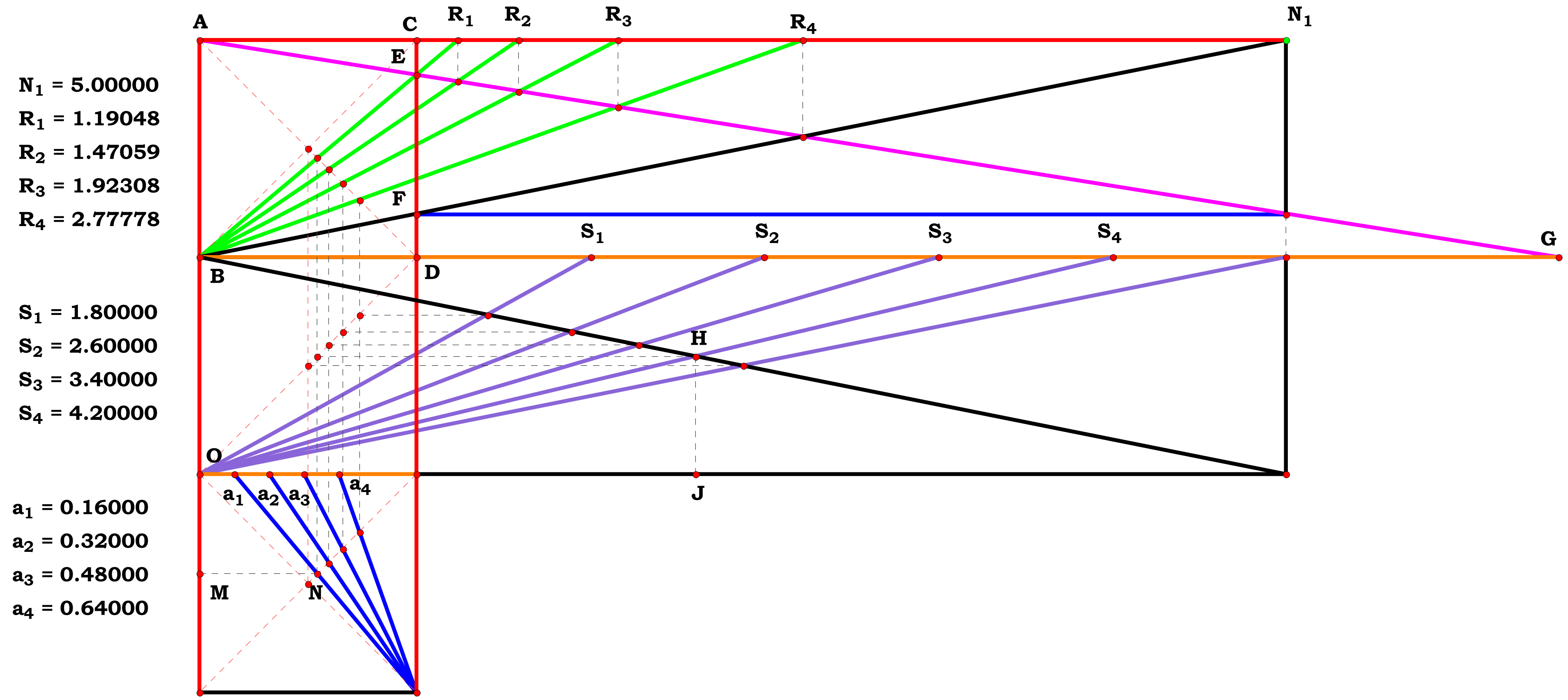


Figure 1.

$$DF := \frac{1}{N_1} \qquad BG := \frac{N_1}{1 - DF} \qquad CE := \frac{1}{BG}$$

$$R_1 := \frac{1}{1 - CE} \qquad R_1 - \frac{N_1^{\,2}}{N_1^{\,2} - (N_1 - 1)} = 0$$

$$\frac{N_1^{\,2}}{N_1^{\,2} - \text{Index}\cdot(N_1 - 1)}$$

$$\frac{N_1^{\,2}}{N_1^{\,2} - 2\cdot(N_1 - 1)} = 1.470588$$

$$\frac{N_1^{\,2}}{N_1^{\,2} - 3\cdot(N_1 - 1)} = 1.923077$$

$$\frac{N_1^{\,2}}{N_1^{\,2} - 4\cdot(N_1 - 1)} = 2.777778$$

Figure 2.

$$HJ := \frac{1}{R_1 + 1} \qquad JO := N_1\cdot HJ \qquad S_4 := \frac{JO}{1 - HJ} \qquad S_4 - \frac{N_1}{R_1} = 0 \qquad S_4 = 4.2$$

$$\frac{N_1^{\,2} - \text{Index}\cdot(N_1 - 1)}{N_1}$$

$$\frac{N_1^{\,2} - 1\cdot(N_1 - 1)}{N_1} = 4.2$$

$$\frac{N_1^{\,2} - 2\cdot(N_1 - 1)}{N_1} = 3.4$$

$$\frac{N_1^{\,2} - 3\cdot(N_1 - 1)}{N_1} = 2.6$$

$$\frac{N_1^{\,2} - 4\cdot(N_1 - 1)}{N_1} = 1.8$$

Interval between consecutive S sub x's.

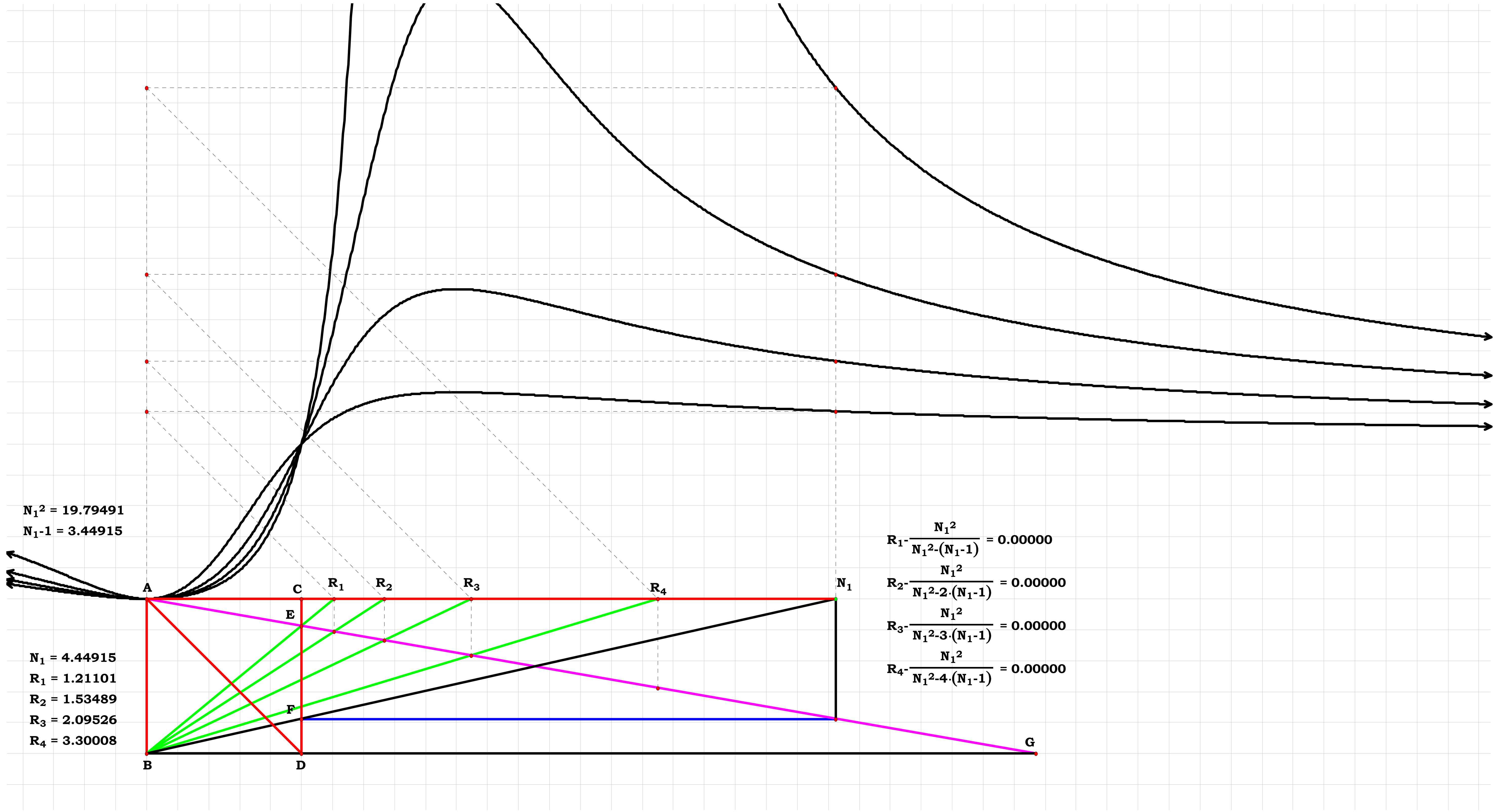
$$\frac{N_1 - 1}{N_1} = 0.8 \qquad S_4 + \frac{N_1 - 1}{N_1} - N_1 = 0$$

Figure 3.

$$MN := R_1\cdot HJ \qquad a_1 := 1 - \frac{1 - MN}{MN} \qquad \frac{\text{Index}\cdot(N_1 - 1)}{N_1^{\,2}} \qquad a_1 = 0.16$$

$$\frac{2\cdot(N_1 - 1)}{N_1^{\,2}} = 0.32 \qquad \frac{3\cdot(N_1 - 1)}{N_1^{\,2}} = 0.48 \qquad \frac{1}{a_1} = 6.25$$

$$\frac{3\cdot(N_1 - 1)}{N_1^{\,2}} = 0.48 \qquad \frac{4\cdot(N_1 - 1)}{N_1^{\,2}} = 0.64$$



N1² = 19.79491
N1-1 = 3.44915
A
C
R1
R2
R3
R4
N1
E
F
B
D
G
N1 = 4.44915
R1 = 1.21101
R2 = 1.53489
R3 = 2.09526
R4 = 3.30008
R1 - N1² / (N1²-(N1-1)) = 0.00000
R2 - N1² / (N1²-2·(N1-1)) = 0.00000
R3 - N1² / (N1²-3·(N1-1)) = 0.00000
R4 - N1² / (N1²-4·(N1-1)) = 0.00000

Figure 4, 5 and 6.

$\underline{AB} := 1$

$\underline{N_1} := 5$

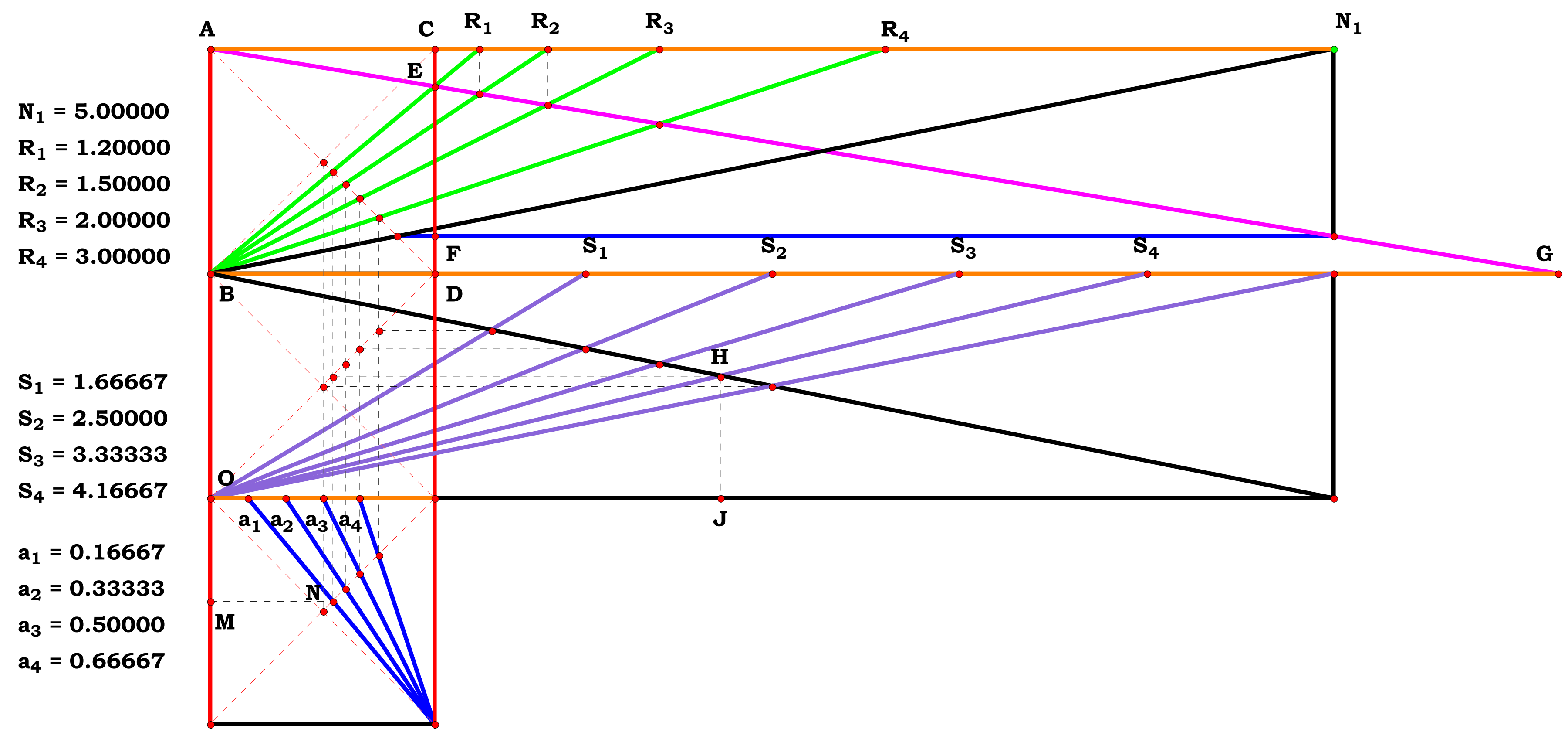


Figure 4.

$\underline{DF} := \frac{1}{N_1 + 1} \qquad \underline{BG} := \frac{N_1}{1 - DF} \qquad \underline{CE} := \frac{1}{BG}$

$\underline{R_1} := \frac{1}{1 - CE} \qquad R_1 - \frac{N_1 + 1}{N_1} = 0$

$$\frac{N_1 + 1}{N_1 + 1 - \text{Index}}$$

$$\frac{N_1 + 1}{N_1 + 1 - 2} = 1.5$$

$$\frac{N_1 + 1}{N_1 + 1 - 3} = 2$$

$$\frac{N_1 + 1}{N_1 + 1 - 4} = 3$$

Figure 5.

$\underline{HJ} := \frac{1}{R_1 + 1} \qquad \underline{JO} := N_1 \cdot HJ \qquad \underline{S_4} := \frac{JO}{1 - HJ} \qquad S_4 - \frac{N_1}{R_1} = 0 \qquad S_4 = 4.166667$

$$\frac{N_1 \cdot (N_1 - \text{Index})}{N_1 + 1}$$

$$\frac{N_1 \cdot (N_1 - 0)}{N_1 + 1} = 4.166667$$

$$\frac{N_1 \cdot (N_1 - 1)}{N_1 + 1} = 3.333333$$

$$\frac{N_1 \cdot (N_1 - 2)}{N_1 + 1} = 2.5$$

$$\frac{N_1 \cdot (N_1 - 3)}{N_1 + 1} = 1.666667$$

Interval between consecutive S sub x's.

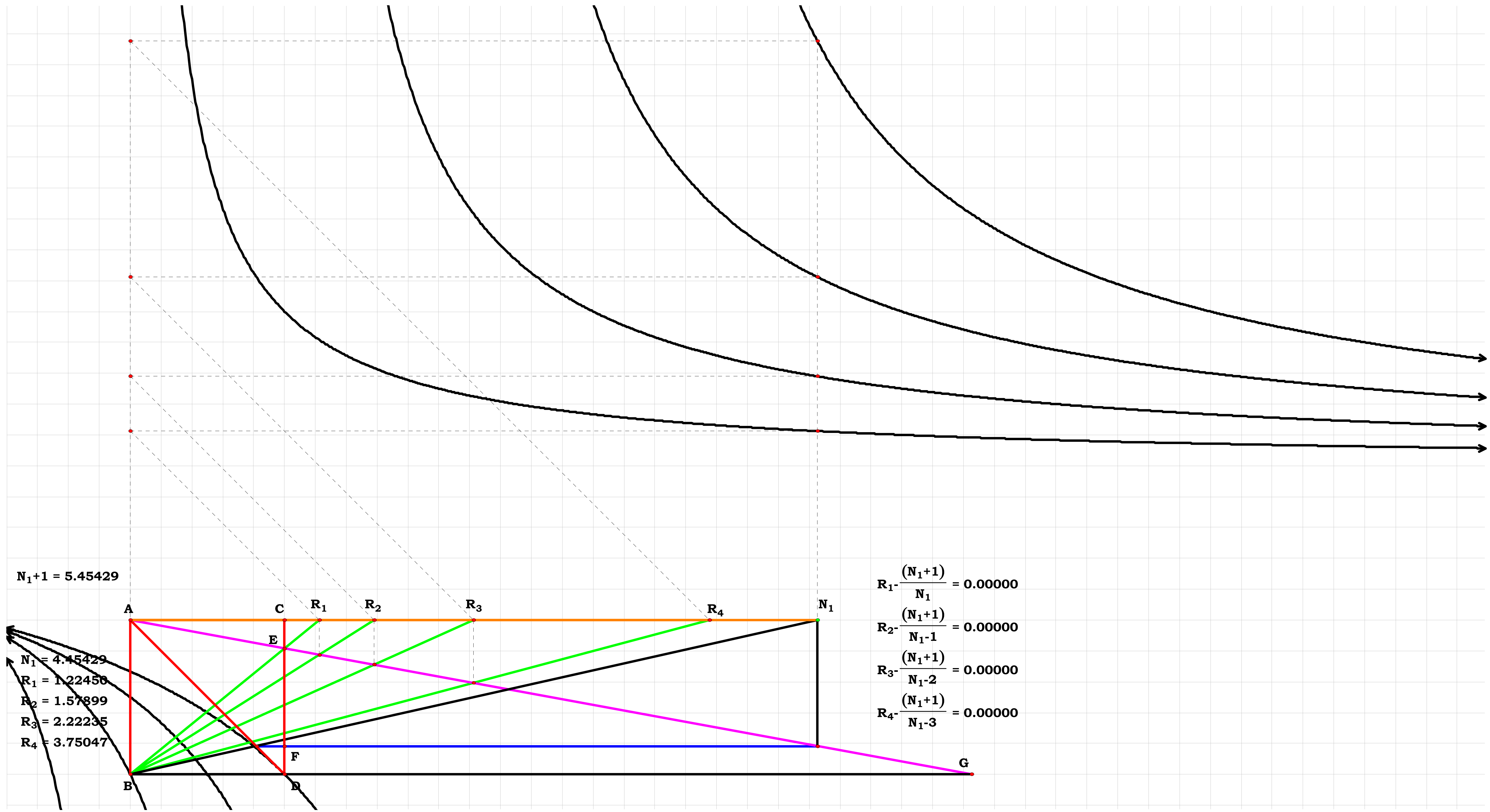
$\frac{N_1}{N_1 + 1} = 0.833333 \qquad S_4 + \frac{N_1}{N_1 + 1} - N_1 = 0$

Figure 6.

$\underline{MN} := R_1 \cdot HJ \qquad \underline{a_1} := 1 - \frac{1 - MN}{MN} \qquad \frac{\text{Index}}{N_1 + 1} \qquad a_1 = 0.166667$

$\frac{1}{N_1 + 1} = 0.166667 \qquad \frac{3}{N_1 + 1} = 0.5 \qquad \frac{1}{a_1} = 6$

$\frac{2}{N_1 + 1} = 0.333333 \qquad \frac{4}{N_1 + 1} = 0.666667$



$N_1+1 = 5.45429$
A
C
R_1
R_2
R_3
R_4
N_1
E
F
B
D
G
$N_1 = 4.45429$
$R_1 = 1.22450$
$R_2 = 1.57899$
$R_3 = 2.22235$
$R_4 = 3.75047$
$R_1 - \frac{(N_1+1)}{N_1} = 0.00000$
$R_2 - \frac{(N_1+1)}{N_1-1} = 0.00000$
$R_3 - \frac{(N_1+1)}{N_1-2} = 0.00000$
$R_4 - \frac{(N_1+1)}{N_1-3} = 0.00000$

$AB := 1$

$N_1 := 5$

Figure 7, 8 and 9.

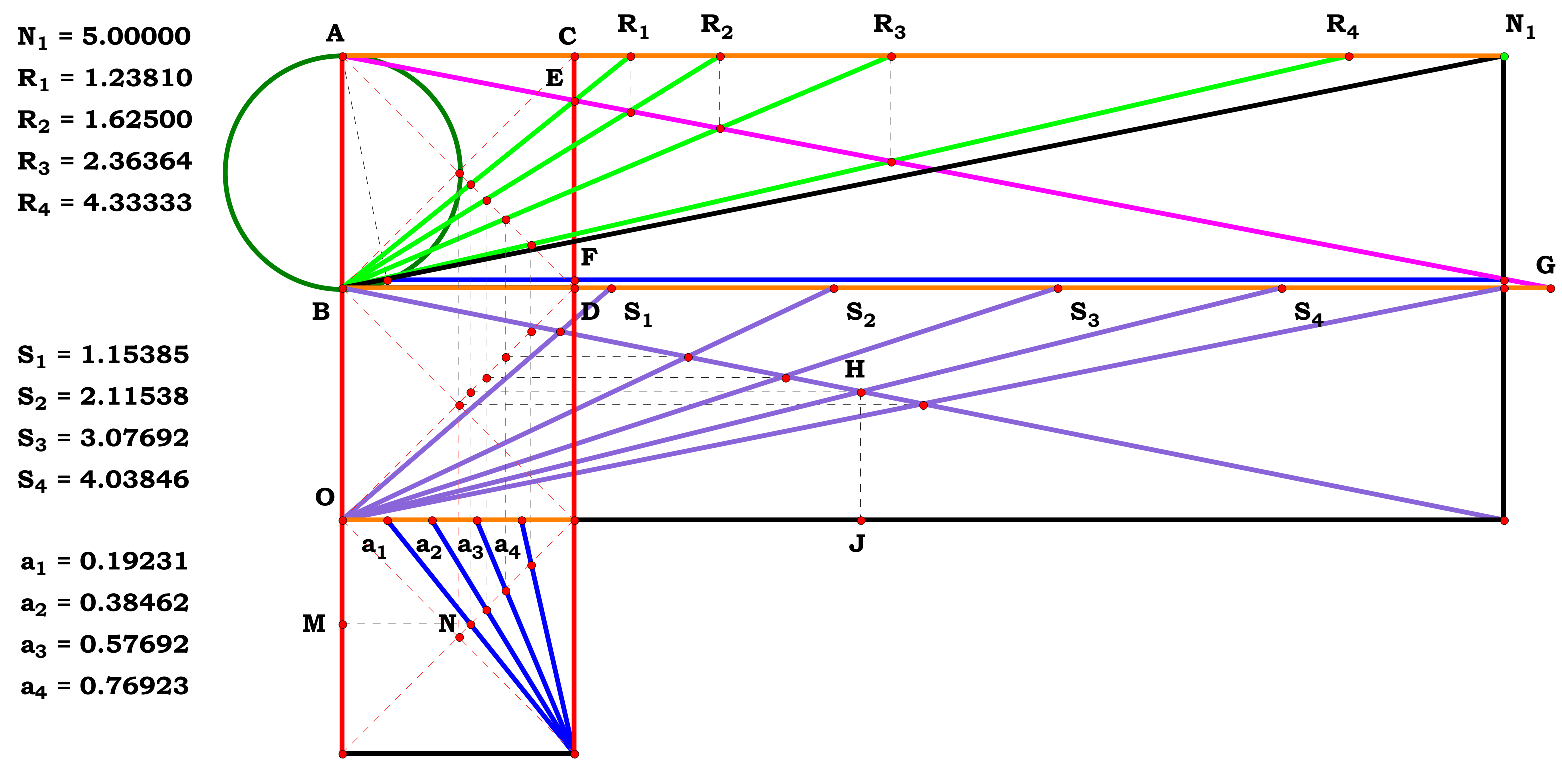


Figure 7

$$DF := \frac{1}{N_1^{\,2}+1} \qquad BG := \frac{N_1}{1-DF} \qquad CE := \frac{1}{BG}$$

$$R_1 := \frac{1}{1-CE} \qquad R_1 - \frac{N_1^{\,2}+1}{N_1^{\,2}-N_1+1} = 0$$

$$\frac{N_1^{\,2}+1}{N_1^{\,2}+1-\text{Index}\cdot N_1}$$

$$\frac{N_1^{\,2}+1}{N_1^{\,2}+1-2\cdot N_1} = 1.625$$

$$\frac{N_1^{\,2}+1}{N_1^{\,2}+1-3\cdot N_1} = 2.363636$$

$$\frac{N_1^{\,2}+1}{N_1^{\,2}+1-4\cdot N_1} = 4.333333$$

Figure 8.

$$HJ := \frac{1}{R_1+1} \qquad JO := N_1\cdot HJ \qquad S_4 := \frac{JO}{1-HJ} \qquad S_4 - \frac{N_1}{R_1} = 0 \qquad S_4 = 4.038462$$

$$\frac{N_1^{\,3}+N_1-\text{Index}\cdot N_1^{\,2}}{N_1^{\,2}+1}$$

$$\frac{N_1^{\,3}+N_1-1\cdot N_1^{\,2}}{N_1^{\,2}+1} = 4.038462$$

$$\frac{N_1^{\,3}+N_1-2\cdot N_1^{\,2}}{N_1^{\,2}+1} = 3.076923$$

$$\frac{N_1^{\,3}+N_1-3\cdot N_1^{\,2}}{N_1^{\,2}+1} = 2.115385$$

$$\frac{N_1^{\,3}+N_1-4\cdot N_1^{\,2}}{N_1^{\,2}+1} = 1.153846$$

Interval between consecutive S sub x's.

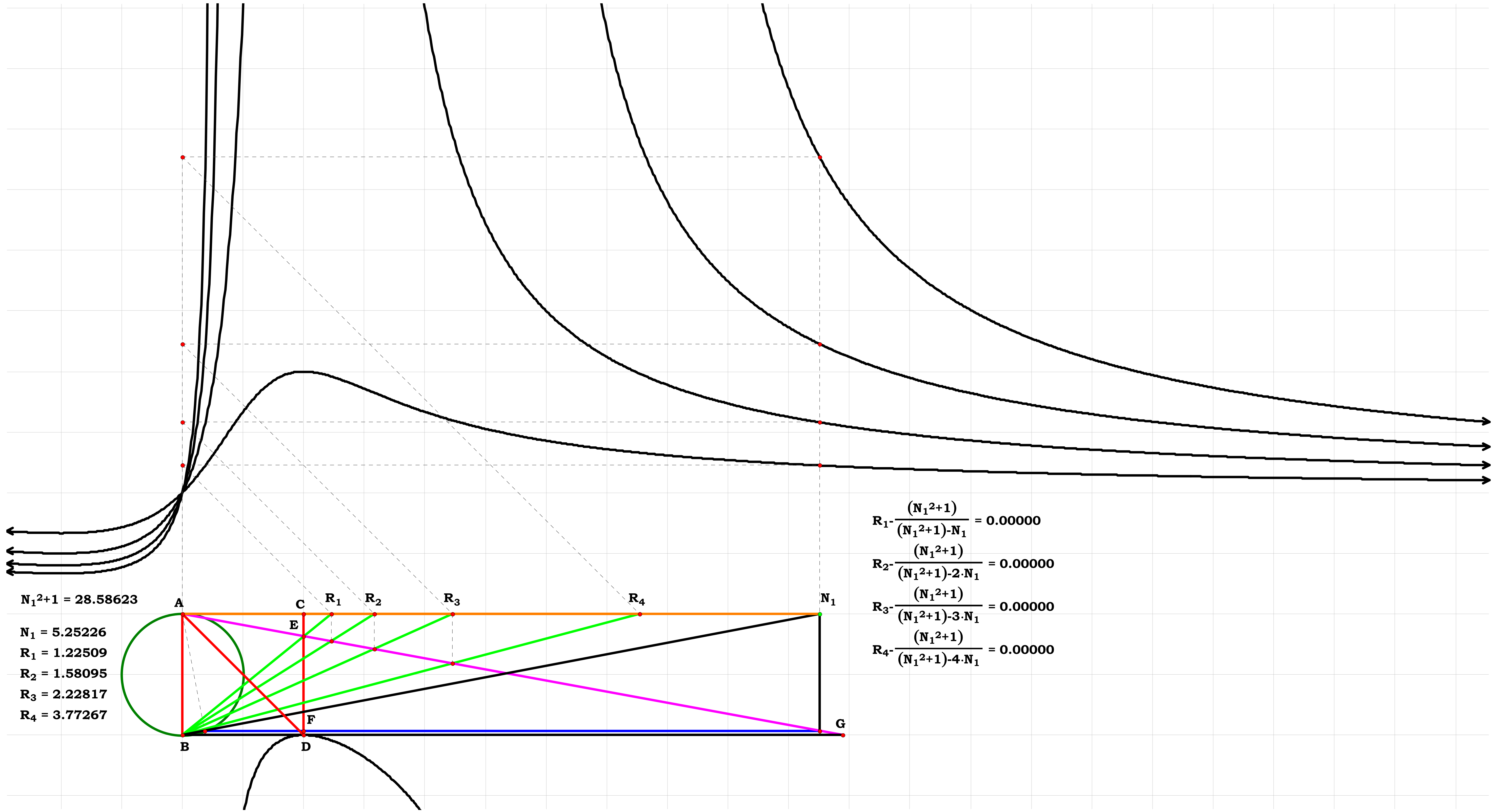
$$\frac{N_1^{\,2}}{N_1^{\,2}+1} = 0.961538 \qquad S_4 + \frac{N_1^{\,2}}{N_1^{\,2}+1} - N_1 = 0$$

Figure 9.

$$MN := R_1\cdot HJ \qquad a_1 := 1 - \frac{1-MN}{MN} \qquad \frac{\text{Index}\cdot N_1}{N_1^{\,2}+1} \qquad a_1 = 0.192308$$

$$\frac{1\cdot N_1}{N_1^{\,2}+1} = 0.192308 \qquad \frac{3\cdot N_1}{N_1^{\,2}+1} = 0.576923 \qquad \frac{1}{a_1} = 5.2$$

$$\frac{2\cdot N_1}{N_1^{\,2}+1} = 0.384615 \qquad \frac{4\cdot N_1}{N_1^{\,2}+1} = 0.769231$$



N1²+1 = 28.58623
N1 = 5.25226
R1 = 1.22509
R2 = 1.58095
R3 = 2.22817
R4 = 3.77267
A
B
C
D
E
F
G
R1
R2
R3
R4
N1
R1-(N1²+1)/((N1²+1)-N1) = 0.00000
R2-(N1²+1)/((N1²+1)-2·N1) = 0.00000
R3-(N1²+1)/((N1²+1)-3·N1) = 0.00000
R4-(N1²+1)/((N1²+1)-4·N1) = 0.00000

Conclusion of the 9 plate series.

It goes without saying that I never demonstrate all of the possible constructions in most of my work. That is not the job of presenting a Tour de Force in Philosophy. A Tour de Force presents a method of complete induction, not a complete set of individual results, which is factually impossible. The argument that a Tour de Force is impossible because someone did not mention some particular item is fallacious; it is like saying that someone did not teach mathematics because they never mentioned some particular number. That argument works only on someone who is not overly bright, everyone starts thinking using enumeration, one either evolves to thinking in terms of definition, or they do not. When they do not, they are condemned to a life of contradiction. How would you discern the difference between heaven and hell?

A grammar book, founded upon the unit concept of a thing, is itself an example of a Tour de Force in Philosophy. Factually, there is only one Tour de Force in Philosophy possible, and it was mentioned a very long time ago.

What does the parable of, If thy eye be single, your whole body would be full of light mean? Does it not mean, that there is but one and only one standard that psychology is based on? That is a biological fact.

$\frac{N_1}{b_1} = 5.20000$

$\frac{N_1}{b_2} = 4.40000$

$\frac{N_1}{b_3} = 3.60000$

$\frac{N_1}{b_4} = 2.80000$

$\frac{N_1}{R_1} = 4.20000$

$\frac{N_1}{R_2} = 3.40000$

$\frac{N_1}{R_3} = 2.60000$

$\frac{N_1}{R_4} = 1.80000$

$\frac{N_1}{S_1} = 2.77778$

$\frac{N_1}{S_2} = 1.92308$

$\frac{N_1}{S_3} = 1.47059$

$\frac{N_1}{S_4} = 1.19048$

$\frac{N_1}{a_1} = 31.25000$

$\frac{N_1}{a_2} = 15.62500$

$\frac{N_1}{a_3} = 10.41667$

$\frac{N_1}{a_4} = 7.81250$

$b_1 = 0.96154$

$b_2 = 1.13636$

$b_3 = 1.38889$

$b_4 = 1.78571$

$N_1 = 5.00000$

$R_1 = 1.19048$

$R_2 = 1.47059$

$R_3 = 1.92308$

$R_4 = 2.77778$

$S_1 = 1.80000$

$S_2 = 2.60000$

$S_3 = 3.40000$

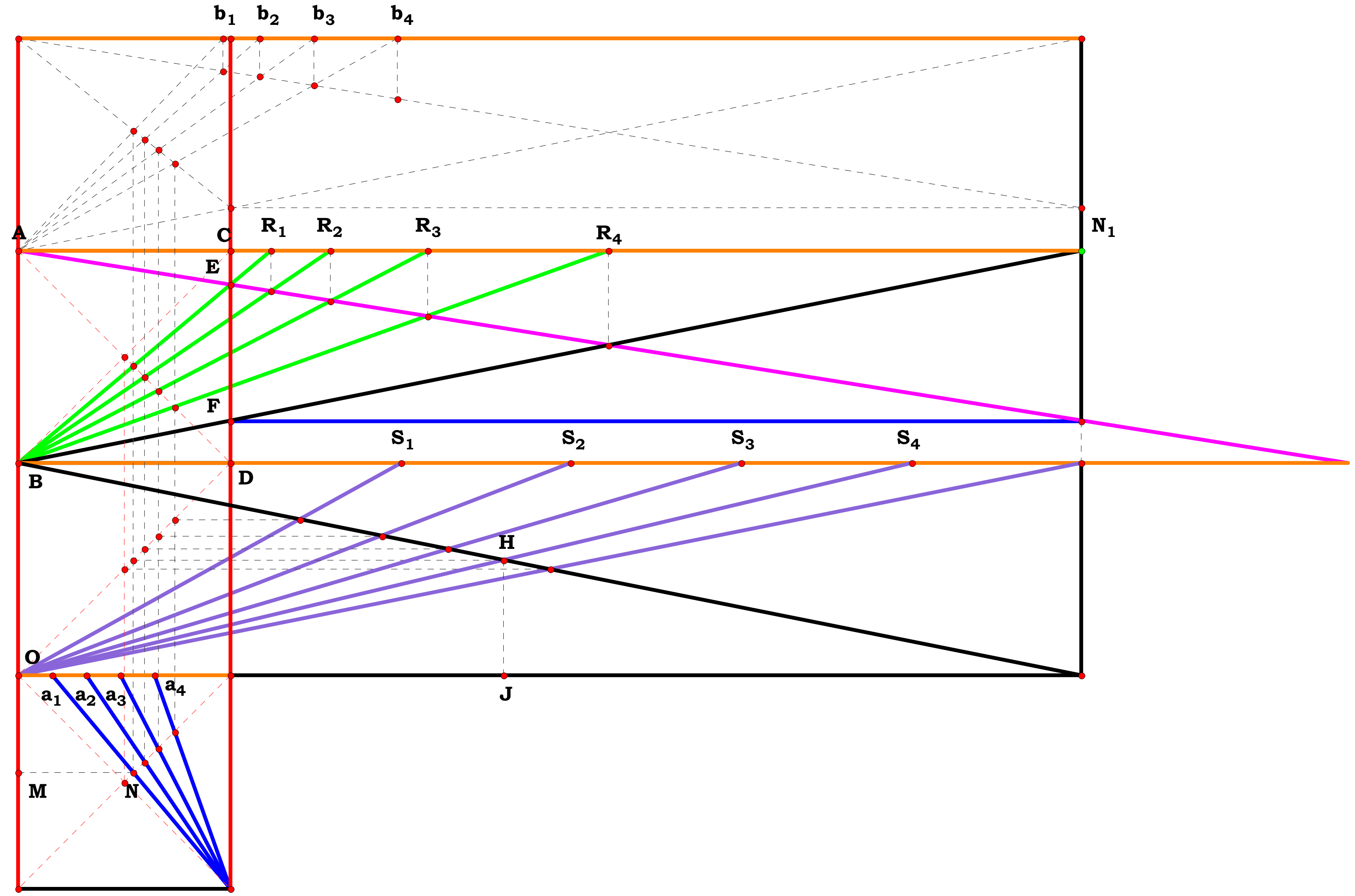
$S_4 = 4.20000$

$a_1 = 0.16000$

$a_2 = 0.32000$

$a_3 = 0.48000$

$a_4 = 0.64000$



Fractional Series Book 1 1

$AB := 1$

$N_1 := 2.87497$

$N_2 := 1.79901$

$N_3 := 4.03249$

$AF := \frac{N_1}{N_2}$ $\quad CH := \frac{1}{N_3}$ $\quad AG := AF$

$R_4 := \frac{AG}{AG - CH}$ $\quad JR_4 := \frac{R_4}{N_3}$ $\quad R_5 := \frac{AG \cdot R_4}{AG - JR_4}$

One can walk each value down, however, these three iterations produce:

$$AB - \frac{N_1 \cdot N_3}{N_1 \cdot N_3} = 0 \qquad R_4 - \frac{N_1 \cdot N_3}{N_1 \cdot N_3 - N_2} = 0 \qquad R_5 - \frac{N_1 \cdot N_3}{N_1 \cdot N_3 - 2 \cdot N_2} = 0$$

giving a sequence:

$$\frac{N_1 \cdot N_3}{N_1 \cdot N_3 - N_2 \cdot \text{Index}} \qquad R_1 := \frac{N_1 \cdot N_3}{N_1 \cdot N_3 - N_2 \cdot -3}$$

$$R_2 := \frac{N_1 \cdot N_3}{N_1 \cdot N_3 - N_2 \cdot -2} \qquad R_3 := \frac{N_1 \cdot N_3}{N_1 \cdot N_3 - N_2 \cdot -1}$$

$$AB - \frac{N_1 \cdot N_3}{N_1 \cdot N_3} = 0 \qquad R_4 - \frac{N_1 \cdot N_3}{N_1 \cdot N_3 - N_2} = 0$$

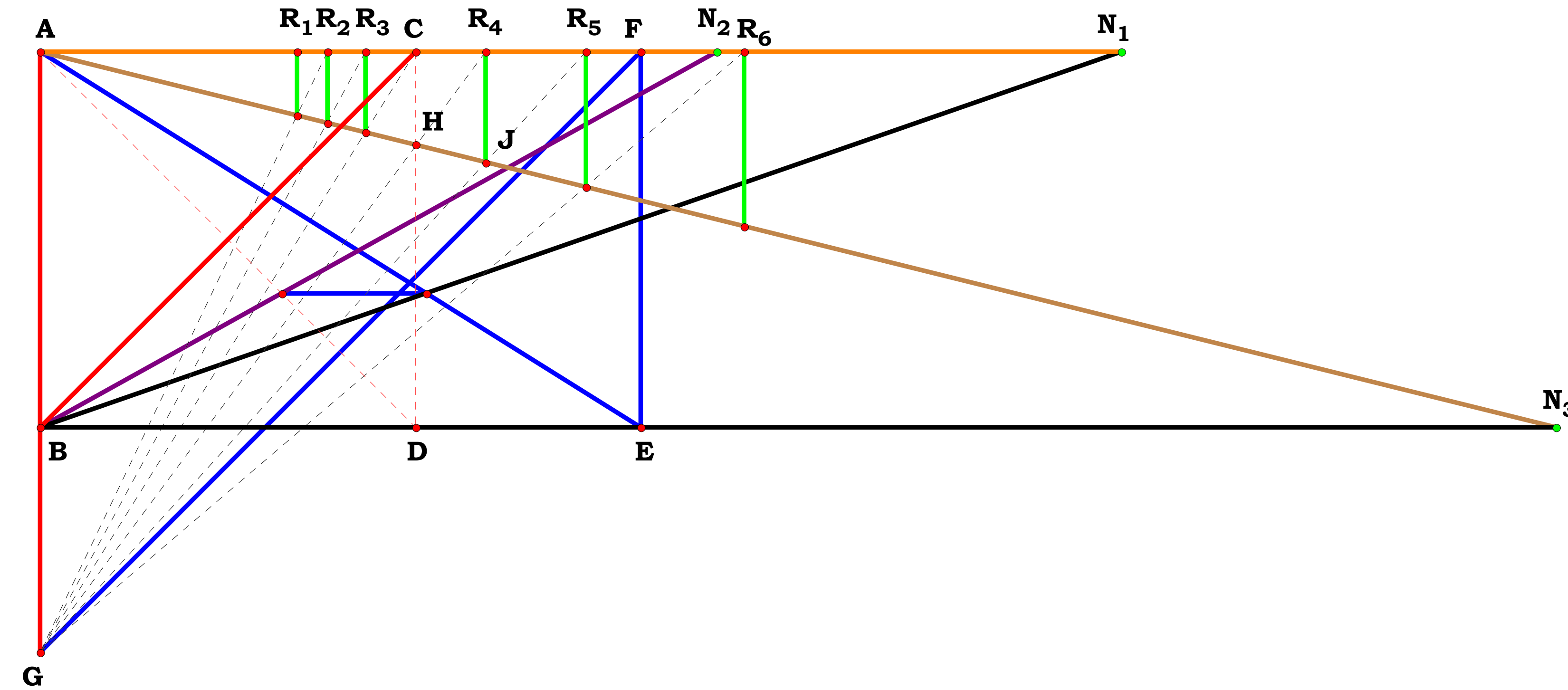
$$R_5 - \frac{N_1 \cdot N_3}{N_1 \cdot N_3 - N_2 \cdot 2} = 0 \qquad R_6 := \frac{N_1 \cdot N_3}{N_1 \cdot N_3 - N_2 \cdot 3}$$

$R_1 = 0.682347$ $\quad R_4 = 1.18368$

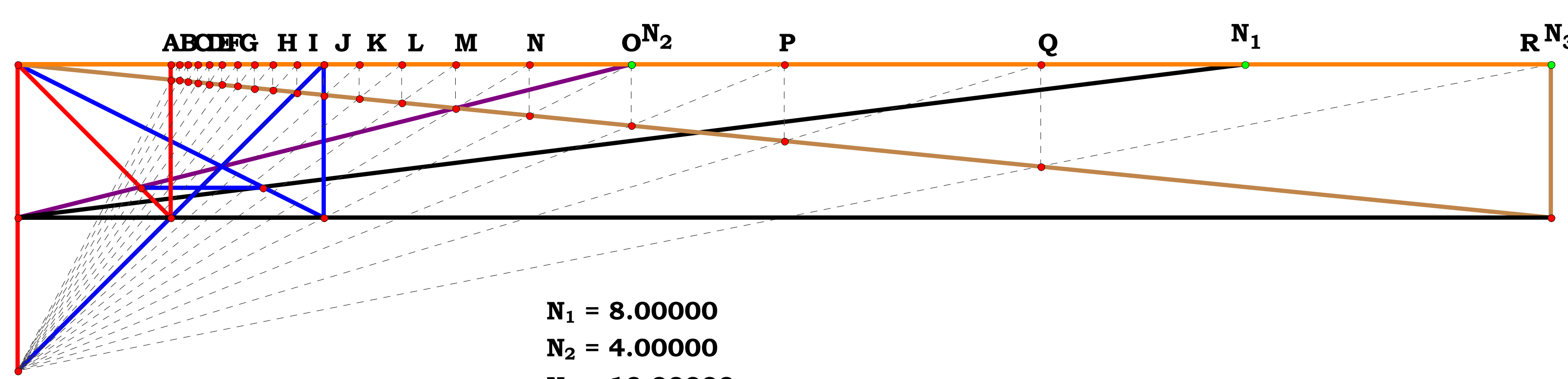
$R_2 = 0.763153$ $\quad R_4 = 1.18368$

$R_3 = 0.865668$ $\quad R_6 = 1.871014$

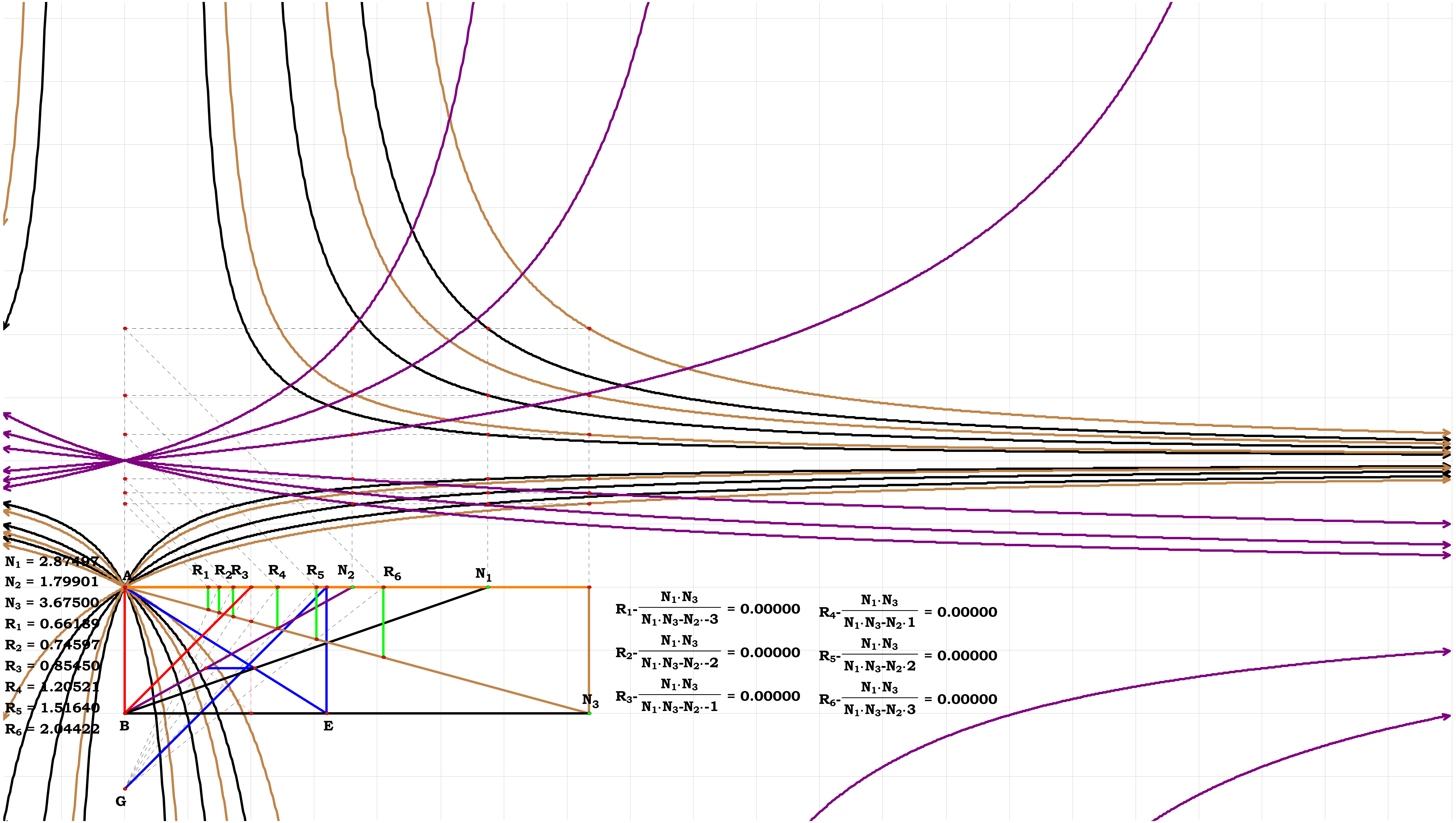
$N_1 = 2.87497$
$N_2 = 1.79901$
$N_3 = 4.03249$
$R_1 = 0.68235$
$R_2 = 0.76315$
$R_3 = 0.86567$
$R_4 = 1.18368$
$R_5 = 1.45002$
$R_6 = 1.87102$



A = 1.05263	H = 1.66667	O = 4.00000
B = 1.11111	I = 1.81818	P = 5.00000
C = 1.17647	J = 2.00000	Q = 6.66667
D = 1.25000	K = 2.22222	R = 10.00000
E = 1.33333	L = 2.50000	
F = 1.42857	M = 2.85714	
G = 1.53846	N = 3.33333	



$N_1 = 8.00000$
$N_2 = 4.00000$
$N_3 = 10.00000$



N1 = 2.87497
N2 = 1.79901
N3 = 3.67500
R1 = 0.66189
R2 = 0.74597
R3 = 0.85450
R4 = 1.20521
R5 = 1.51640
R6 = 2.04422
A
B
E
G
R1 R2 R3 R4 R5 N2 R6 N1
N3
$R_1 - \frac{N_1 \cdot N_3}{N_1 \cdot N_3 - N_2 \cdot -3} = 0.00000$
$R_2 - \frac{N_1 \cdot N_3}{N_1 \cdot N_3 - N_2 \cdot -2} = 0.00000$
$R_3 - \frac{N_1 \cdot N_3}{N_1 \cdot N_3 - N_2 \cdot -1} = 0.00000$
$R_4 - \frac{N_1 \cdot N_3}{N_1 \cdot N_3 - N_2 \cdot 1} = 0.00000$
$R_5 - \frac{N_1 \cdot N_3}{N_1 \cdot N_3 - N_2 \cdot 2} = 0.00000$
$R_6 - \frac{N_1 \cdot N_3}{N_1 \cdot N_3 - N_2 \cdot 3} = 0.00000$

$AB := 1$

$N_1 := 1.73988$

$N_2 := 2.18406$

$N_3 := 3.49697$

Fractional Series Book 1 3

$$DE := \frac{1}{N_3} \quad BK := \frac{N_2}{1 - DE} \quad CF := \frac{1}{BK}$$

$$R_4 := \frac{N_1}{N_1 - CF} \quad GR_4 := \frac{R_4 \cdot (N_3 - 1)}{N_2 \cdot N_3} \quad R_5 := \frac{N_1 \cdot R_4}{N_1 - GR_4}$$

$$CF - \frac{N_3 - 1}{N_2 \cdot N_3} = 0$$

By interpolation gives:

$$\frac{N_1 \cdot N_2 \cdot N_3}{N_1 \cdot N_2 \cdot N_3 - \text{Index} \cdot (N_3 - 1)} \qquad R_4 - \frac{N_1 \cdot N_2 \cdot N_3}{N_1 \cdot N_2 \cdot N_3 - N_3 + 1} = 0$$

$$R_5 - \frac{N_1 \cdot N_2 \cdot N_3}{N_1 \cdot N_2 \cdot N_3 - 2 \cdot N_3 + 2} = 0 \qquad R_1 := \frac{N_1 \cdot N_2 \cdot N_3}{N_1 \cdot N_2 \cdot N_3 - (N_3 - 1) \cdot -3}$$

$$R_2 := \frac{N_1 \cdot N_2 \cdot N_3}{N_1 \cdot N_2 \cdot N_3 - (N_3 - 1) \cdot -2} \qquad R_3 := \frac{N_1 \cdot N_2 \cdot N_3}{N_1 \cdot N_2 \cdot N_3 - (N_3 - 1) \cdot -1}$$

$$AB - \frac{N_1 \cdot N_2 \cdot N_3}{N_1 \cdot N_2 \cdot N_3 - (N_3 - 1) \cdot 0} = 0 \qquad R_4 - \frac{N_1 \cdot N_2 \cdot N_3}{N_1 \cdot N_2 \cdot N_3 - (N_3 - 1) \cdot 1} = 0$$

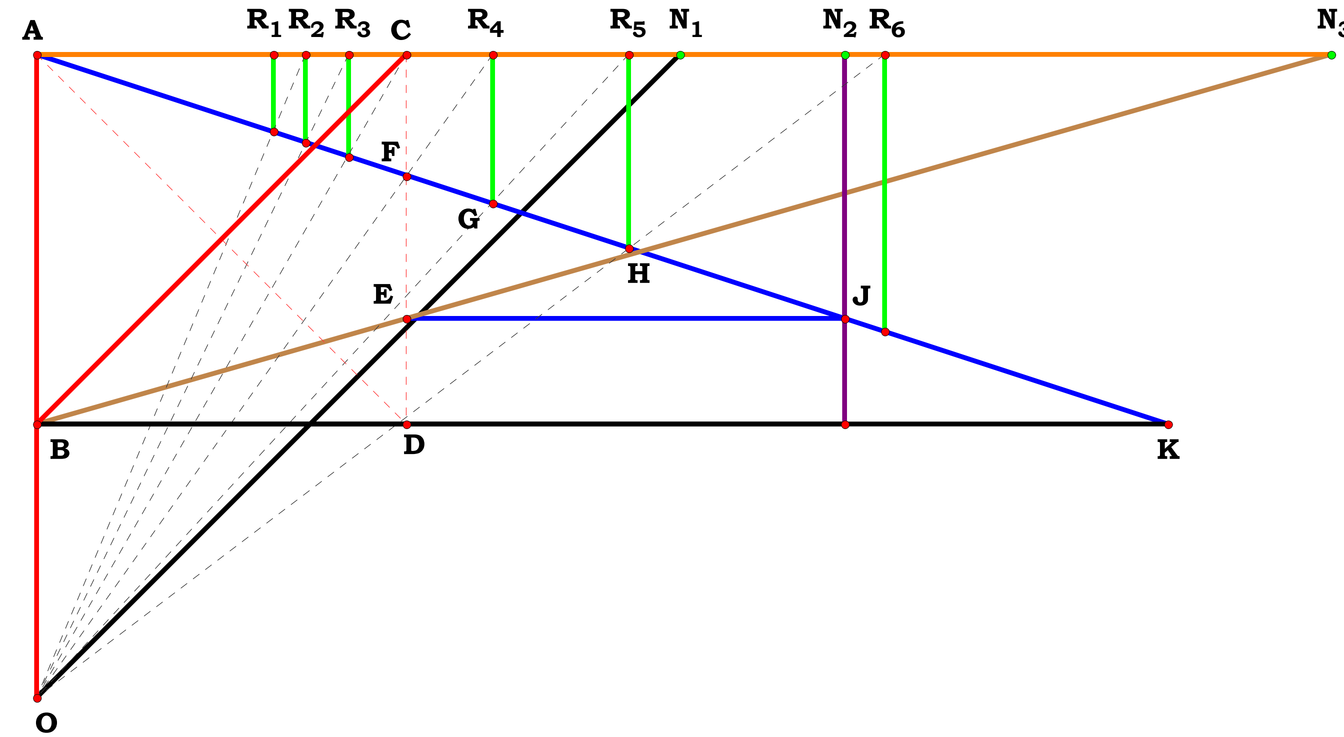
$$R_5 - \frac{N_1 \cdot N_2 \cdot N_3}{N_1 \cdot N_2 \cdot N_3 - (N_3 - 1) \cdot 2} = 0 \qquad R_6 := \frac{N_1 \cdot N_2 \cdot N_3}{N_1 \cdot N_2 \cdot N_3 - (N_3 - 1) \cdot 3}$$

$R_1 = 0.639503$ $\quad R_4 = 1.231383$

$R_2 = 0.726845$ $\quad R_5 = 1.602075$

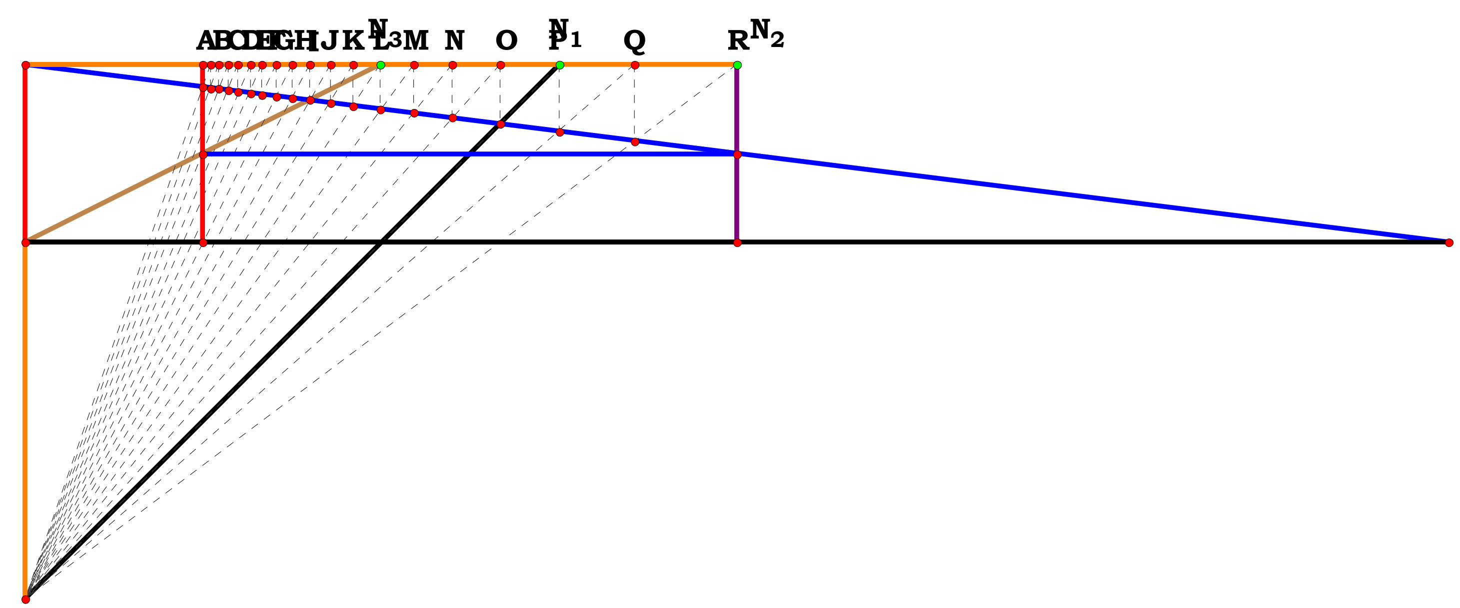
$R_3 = 0.841818$ $\quad R_6 = 2.292074$

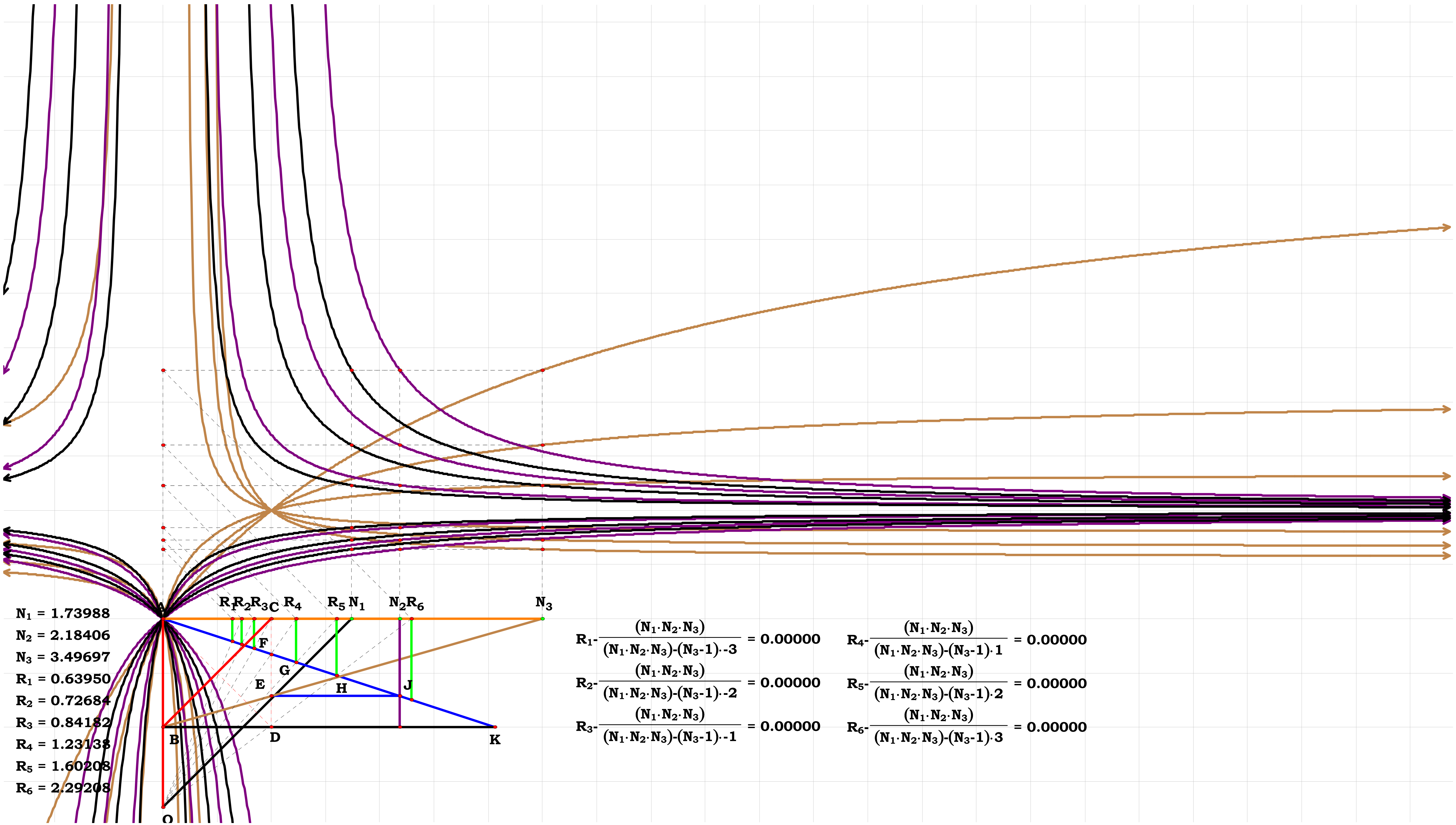
$N_1 = 1.73988$
$N_2 = 2.18406$
$N_3 = 3.49697$
$R_1 = 0.63950$
$R_2 = 0.72684$
$R_3 = 0.84182$
$R_4 = 1.23138$
$R_5 = 1.60208$
$R_6 = 2.29208$



A = 1.04348	G = 1.41176	M = 2.18182
B = 1.09091	H = 1.50000	N = 2.40000
C = 1.14286	I = 1.60000	O = 2.66667
D = 1.20000	J = 1.71429	P = 3.00000
E = 1.26316	K = 1.84615	Q = 3.42857
F = 1.33333	L = 2.00000	R = 4.00000

$N_1 = 3.00000$
$N_2 = 4.00000$
$N_3 = 2.00000$



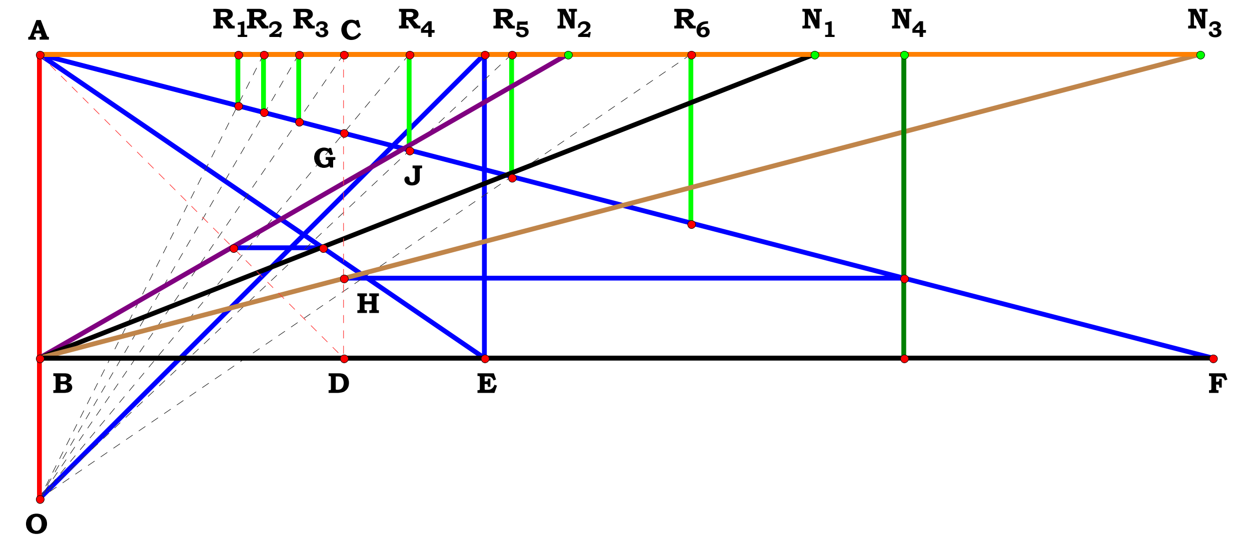


R1 R2 R3 C R4 R5 N1 N2 R6 N3
F G E H J
B D K
O
N1 = 1.73988
N2 = 2.18406
N3 = 3.49697
R1 = 0.63950
R2 = 0.72684
R3 = 0.84182
R4 = 1.23138
R5 = 1.60208
R6 = 2.29208
$R_1 - \frac{(N_1 \cdot N_2 \cdot N_3)}{(N_1 \cdot N_2 \cdot N_3)-(N_3-1) \cdot -3} = 0.00000$
$R_2 - \frac{(N_1 \cdot N_2 \cdot N_3)}{(N_1 \cdot N_2 \cdot N_3)-(N_3-1) \cdot -2} = 0.00000$
$R_3 - \frac{(N_1 \cdot N_2 \cdot N_3)}{(N_1 \cdot N_2 \cdot N_3)-(N_3-1) \cdot -1} = 0.00000$
$R_4 - \frac{(N_1 \cdot N_2 \cdot N_3)}{(N_1 \cdot N_2 \cdot N_3)-(N_3-1) \cdot 1} = 0.00000$
$R_5 - \frac{(N_1 \cdot N_2 \cdot N_3)}{(N_1 \cdot N_2 \cdot N_3)-(N_3-1) \cdot 2} = 0.00000$
$R_6 - \frac{(N_1 \cdot N_2 \cdot N_3)}{(N_1 \cdot N_2 \cdot N_3)-(N_3-1) \cdot 3} = 0.00000$

Fractional Series Book 1 5

$$AB := 1$$
$$N_1 := 2.54173$$
$$N_2 := 1.73712$$
$$N_3 := 3.81280$$
$$N_4 := 2.84066$$

$N_1 = 2.54173$
$N_2 = 1.73712$
$N_3 = 3.81280$
$N_4 = 2.84066$
$R_1 = 0.65254$
$R_2 = 0.73802$
$R_3 = 0.84926$
$R_4 = 1.21579$
$R_5 = 1.55035$
$R_6 = 2.13892$



$$BE := \frac{N_1}{N_2} \quad DH := \frac{1}{N_3} \quad BF := \frac{N_4}{1 - DH} \quad CG := \frac{1}{BF}$$

$$R_4 := \frac{BE}{BE - CG} \quad R_5 := \frac{BE}{BE - CG \cdot 2} \quad R_6 := \frac{BE}{BE - CG \cdot 3}$$

$$R_3 := \frac{BE}{BE - CG \cdot -1} \quad R_2 := \frac{BE}{BE - CG \cdot -2} \quad R_1 := \frac{BE}{BE - CG \cdot -3} \quad CG - \frac{N_3 - 1}{N_3 \cdot N_4} = 0 \quad \frac{N_1 \cdot N_3 \cdot N_4}{Index \cdot (N_2 - N_2 \cdot N_3) + N_1 \cdot N_3 \cdot N_4}$$

$$R_4 - \frac{N_1 \cdot N_3 \cdot N_4}{N_2 - N_2 \cdot N_3 + N_1 \cdot N_3 \cdot N_4} = 0 \quad R_5 - \frac{N_1 \cdot N_3 \cdot N_4}{2 \cdot (N_2 - N_2 \cdot N_3) + N_1 \cdot N_3 \cdot N_4} = 0 \quad R_1 - \frac{N_1 \cdot N_3 \cdot N_4}{-3 \cdot (N_2 - N_2 \cdot N_3) + N_1 \cdot N_3 \cdot N_4} = 0 \quad R_2 - \frac{N_1 \cdot N_3 \cdot N_4}{-2 \cdot (N_2 - N_2 \cdot N_3) + N_1 \cdot N_3 \cdot N_4} = 0$$

$$R_3 - \frac{N_1 \cdot N_3 \cdot N_4}{-1 \cdot (N_2 - N_2 \cdot N_3) + N_1 \cdot N_3 \cdot N_4} = 0 \quad R_4 - \frac{N_1 \cdot N_3 \cdot N_4}{1 \cdot (N_2 - N_2 \cdot N_3) + N_1 \cdot N_3 \cdot N_4} = 0 \quad R_5 - \frac{N_1 \cdot N_3 \cdot N_4}{2 \cdot (N_2 - N_2 \cdot N_3) + N_1 \cdot N_3 \cdot N_4} = 0 \quad R_6 - \frac{N_1 \cdot N_3 \cdot N_4}{3 \cdot (N_2 - N_2 \cdot N_3) + N_1 \cdot N_3 \cdot N_4} = 0$$

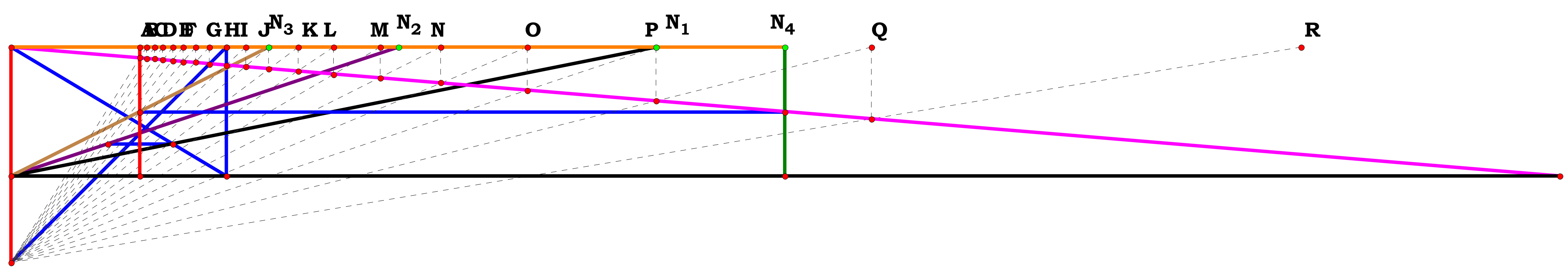
$N_1 = 5.00000$
$N_2 = 3.00000$
$N_3 = 2.00000$
$N_4 = 6.00000$

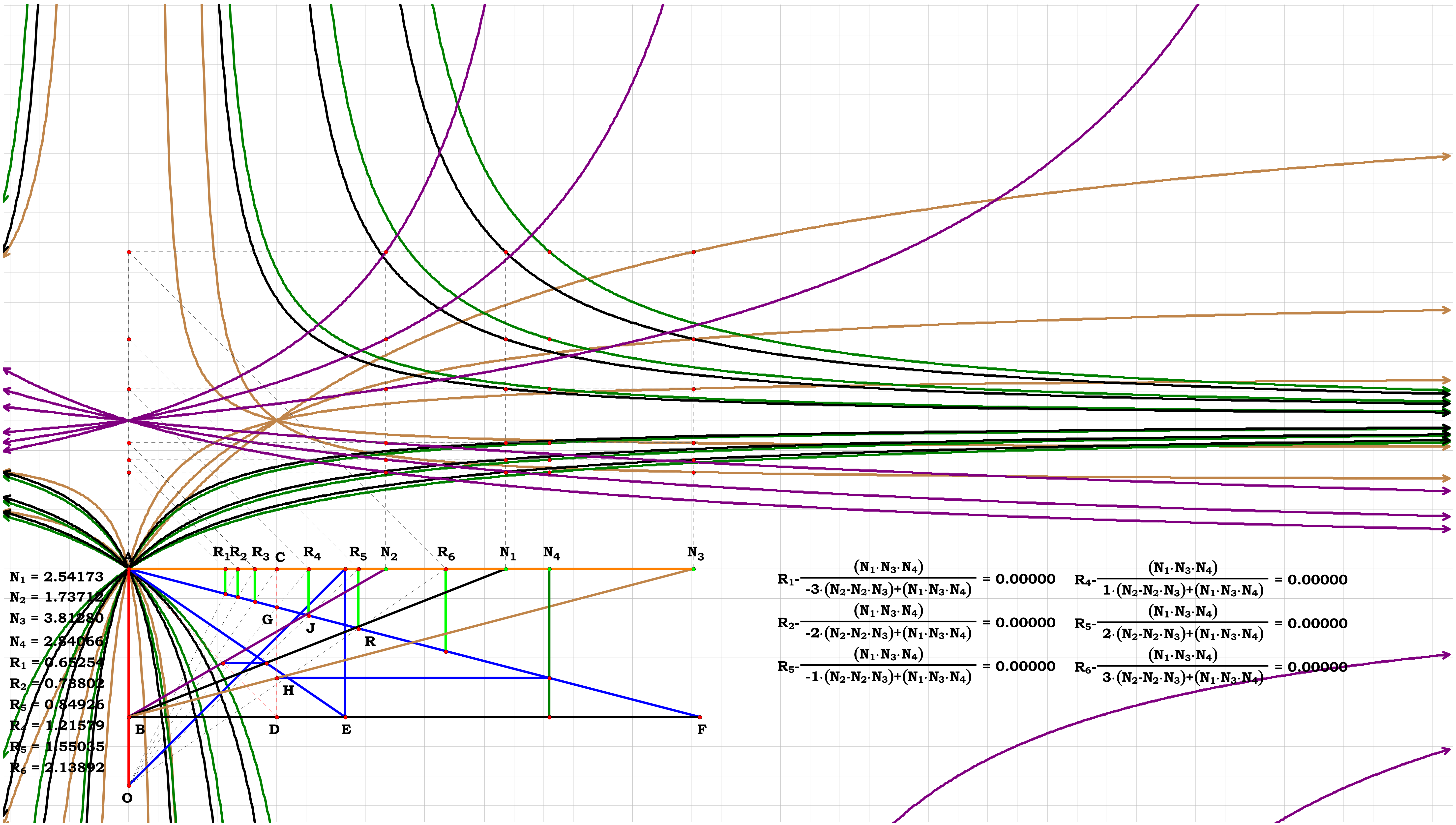
$A = 1.05263$
$B = 1.11111$
$C = 1.17647$
$D = 1.25000$
$E = 1.33333$
$F = 1.42857$

$G = 1.53846$
$H = 1.66667$
$I = 1.81818$
$J = 2.00000$
$K = 2.22222$
$L = 2.50000$

$M = 2.85714$
$N = 3.33333$
$O = 4.00000$
$P = 5.00000$
$Q = 6.66667$
$R = 10.00000$

$R_1 = 0.65254$
$R_2 = 0.738017$
$R_3 = 0.849263$
$R_4 = 1.215792$
$R_5 = 1.550344$
$R_6 = 2.138912$





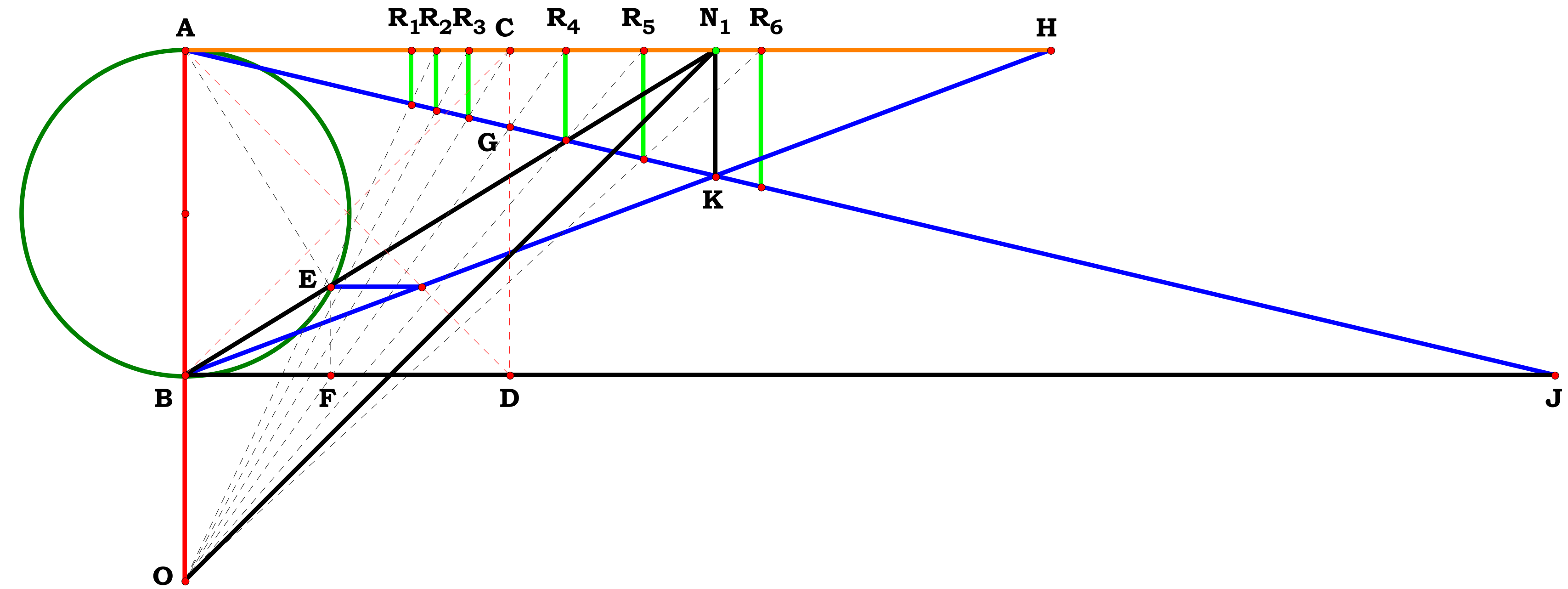
A
R1
R2
R3
C
R4
R5
N2
R6
N1
N4
N3
G
J
R
H
B
D
E
F
O
N1 = 2.54173
N2 = 1.73712
N3 = 3.81280
N4 = 2.84066
R1 = 0.65254
R2 = 0.73802
R5 = 0.84926
R4 = 1.21579
R5 = 1.55035
R6 = 2.13892
$R_1 - \frac{(N_1 \cdot N_3 \cdot N_4)}{-3 \cdot (N_2 - N_2 \cdot N_3) + (N_1 \cdot N_3 \cdot N_4)} = 0.00000$
$R_2 - \frac{(N_1 \cdot N_3 \cdot N_4)}{-2 \cdot (N_2 - N_2 \cdot N_3) + (N_1 \cdot N_3 \cdot N_4)} = 0.00000$
$R_5 - \frac{(N_1 \cdot N_3 \cdot N_4)}{-1 \cdot (N_2 - N_2 \cdot N_3) + (N_1 \cdot N_3 \cdot N_4)} = 0.00000$
$R_4 - \frac{(N_1 \cdot N_3 \cdot N_4)}{1 \cdot (N_2 - N_2 \cdot N_3) + (N_1 \cdot N_3 \cdot N_4)} = 0.00000$
$R_5 - \frac{(N_1 \cdot N_3 \cdot N_4)}{2 \cdot (N_2 - N_2 \cdot N_3) + (N_1 \cdot N_3 \cdot N_4)} = 0.00000$
$R_6 - \frac{(N_1 \cdot N_3 \cdot N_4)}{3 \cdot (N_2 - N_2 \cdot N_3) + (N_1 \cdot N_3 \cdot N_4)} = 0.00000$

Fractional Series Book 1 7

$AB := 1$

$N_1 := 1.63207$

$N_1 = 1.63207$
$R_1 = 0.69629$
$R_2 = 0.77472$
$R_3 = 0.87306$
$R_4 = 1.17013$
$R_5 = 1.41002$
$R_6 = 1.77363$



$$BN_1 := \sqrt{AB^2 + N_1^2} \quad BE := \frac{AB^2}{BN_1} \quad EF := \frac{BE}{BN_1}$$

$$AH := \frac{1 - EF}{EF} \quad KN_1 := 1 - \frac{N_1}{AH} \quad BJ := \frac{N_1}{KN_1}$$

$$CG := \frac{1}{BJ} \quad CG - \frac{N_1 - 1}{N_1^{\,2}} = 0 \quad R_4 := \frac{N_1}{N_1 - CG} \quad R_5 := \frac{N_1}{N_1 - 2 \cdot CG}$$

$$R_6 := \frac{N_1}{N_1 - 3 \cdot CG} \quad R_3 := \frac{N_1}{N_1 + CG} \quad R_2 := \frac{N_1}{N_1 + 2 \cdot CG} \quad R_1 := \frac{N_1}{N_1 + 3 \cdot CG}$$

$$\frac{N_1^{\,3}}{N_1^{\,3} - \mathrm{Index} \cdot (N_1 - 1)}$$

$$R_1 - \frac{N_1^{\,3}}{N_1^{\,3} - (N_1 - 1) \cdot -3} = 0 \qquad R_2 - \frac{N_1^{\,3}}{N_1^{\,3} + 2 \cdot N_1 - 2} = 0$$

$$R_3 - \frac{N_1^{\,3}}{N_1^{\,3} + N_1 - 1} = 0 \qquad R_4 - \frac{N_1^{\,3}}{N_1^{\,3} - N_1 + 1} = 0$$

$$R_5 - \frac{N_1^{\,3}}{N_1^{\,3} - 2 \cdot N_1 + 2} = 0 \qquad R_6 - \frac{N_1^{\,3}}{N_1^{\,3} - 3 \cdot N_1 + 3} = 0$$

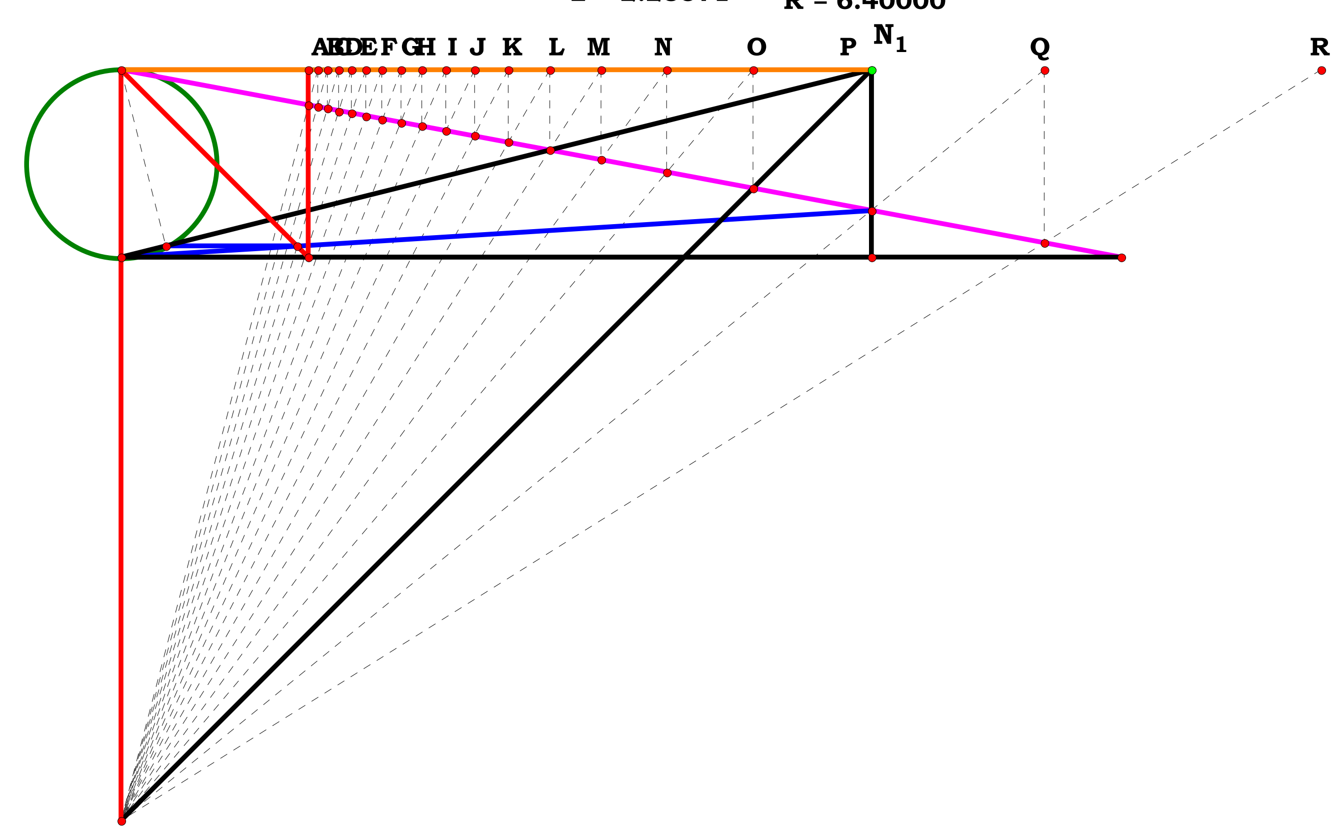
$R_1 = 0.696289$ $\quad R_4 = 1.170131$

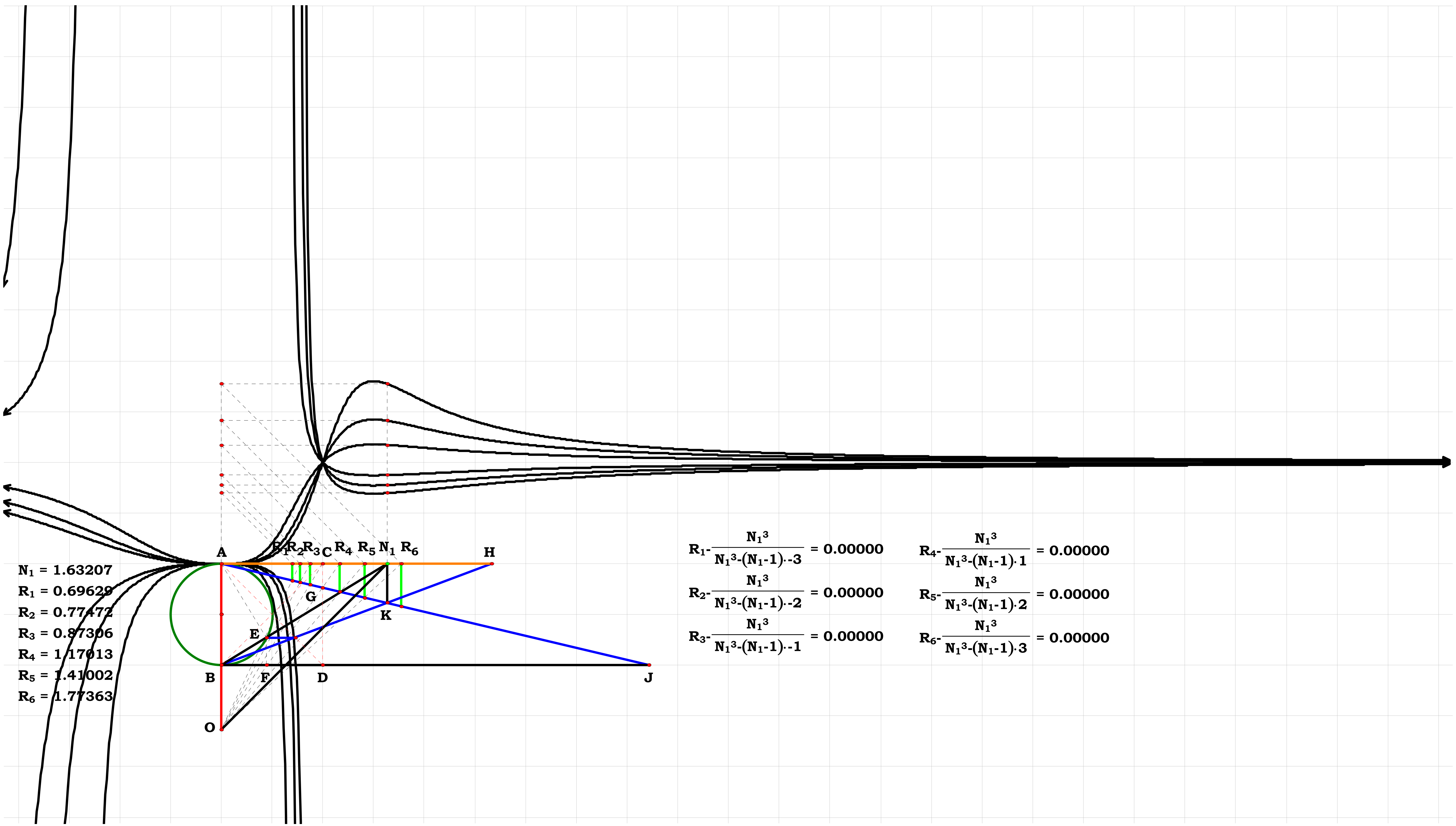
$R_2 = 0.77472$ $\quad R_5 = 1.410019$

$R_3 = 0.873061$ $\quad R_6 = 1.773629$

$N_1 = 4.00000$

A = 1.04918	G = 1.48837	M = 2.56000
B = 1.10345	H = 1.60000	N = 2.90909
C = 1.16364	I = 1.72973	O = 3.36842
D = 1.23077	J = 1.88235	P = 4.00000
E = 1.30612	K = 2.06452	Q = 4.92308
F = 1.39130	L = 2.28571	R = 6.40000





A
R_1 R_2 R_3 C R_4 R_5 N_1 R_6
H
G
K
E
B
F
D
J
O
$N_1 = 1.63207$
$R_1 = 0.69629$
$R_2 = 0.77472$
$R_3 = 0.87306$
$R_4 = 1.17013$
$R_5 = 1.41002$
$R_6 = 1.77363$
$R_1 - \frac{N_1^3}{N_1^3-(N_1-1)\cdot -3} = 0.00000$
$R_2 - \frac{N_1^3}{N_1^3-(N_1-1)\cdot -2} = 0.00000$
$R_3 - \frac{N_1^3}{N_1^3-(N_1-1)\cdot -1} = 0.00000$
$R_4 - \frac{N_1^3}{N_1^3-(N_1-1)\cdot 1} = 0.00000$
$R_5 - \frac{N_1^3}{N_1^3-(N_1-1)\cdot 2} = 0.00000$
$R_6 - \frac{N_1^3}{N_1^3-(N_1-1)\cdot 3} = 0.00000$

$\mathbf{AB} := 1$

$\mathbf{N_1} := 2.99687$

$\mathbf{N_2} := 2.21643$

Fractional Series Book 1 19

$$CE := \frac{1}{N_1}$$

$$R_4 := \frac{N_2}{N_2 - CE} \qquad R_5 := \frac{N_2}{N_2 - 2 \cdot CE} \qquad R_6 := \frac{N_2}{N_2 - 3 \cdot CE}$$

$$R_3 := \frac{N_2}{N_2 + CE} \qquad R_2 := \frac{N_2}{N_2 + 2 \cdot CE} \qquad R_1 := \frac{N_2}{N_2 + 3 \cdot CE}$$

$$\frac{N_1 \cdot N_2}{N_1 \cdot N_2 - \text{Index}}$$

$$R_4 - \frac{N_1 \cdot N_2}{N_1 \cdot N_2 - 1} = 0 \qquad R_5 - \frac{N_1 \cdot N_2}{N_1 \cdot N_2 - 2} = 0$$

$$R_6 - \frac{N_1 \cdot N_2}{N_1 \cdot N_2 - 3} = 0 \qquad R_3 - \frac{N_1 \cdot N_2}{N_1 \cdot N_2 - -1} = 0$$

$$R_2 - \frac{N_1 \cdot N_2}{N_1 \cdot N_2 - -2} = 0 \qquad R_1 - \frac{N_1 \cdot N_2}{N_1 \cdot N_2 - -3} = 0$$

$R_1 = 0.688873$

$R_2 = 0.768582$

$R_3 = 0.86915$

$R_4 = 1.177231$

$R_5 = 1.430816$

$R_6 = 1.823643$

$N_1 = 2.99687$

$N_2 = 2.21643$

$R_1 = 0.68887$

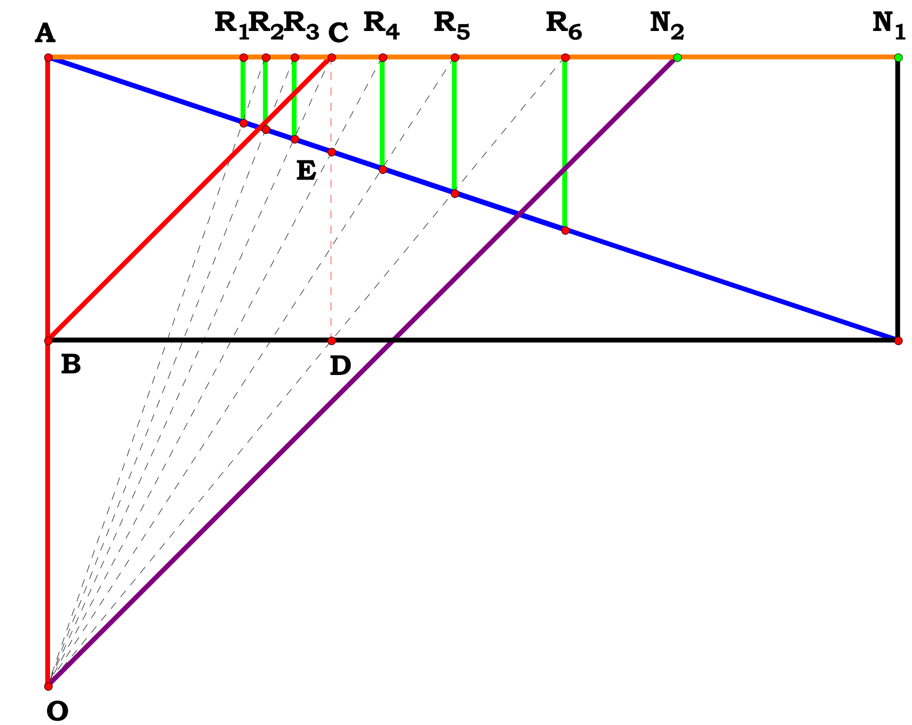
$R_2 = 0.76858$

$R_3 = 0.86915$

$R_4 = 1.17723$

$R_5 = 1.43082$

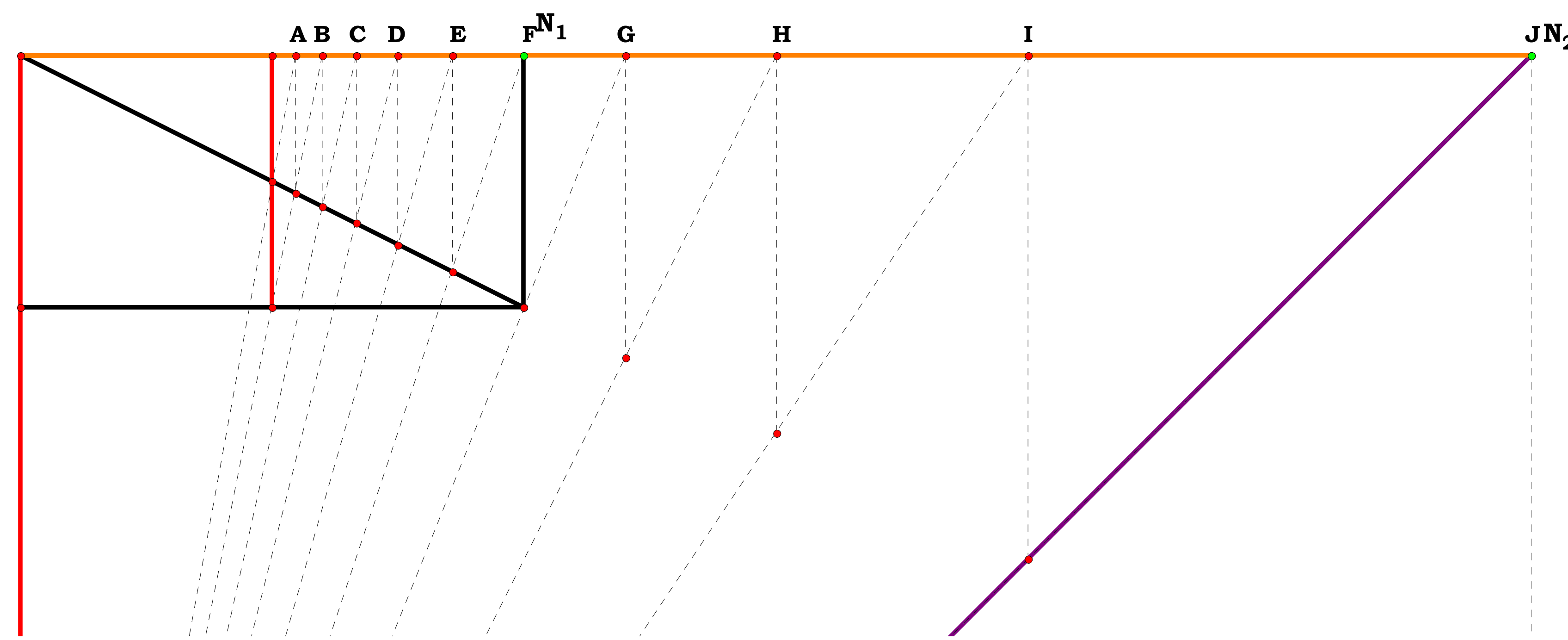
$R_6 = 1.82364$

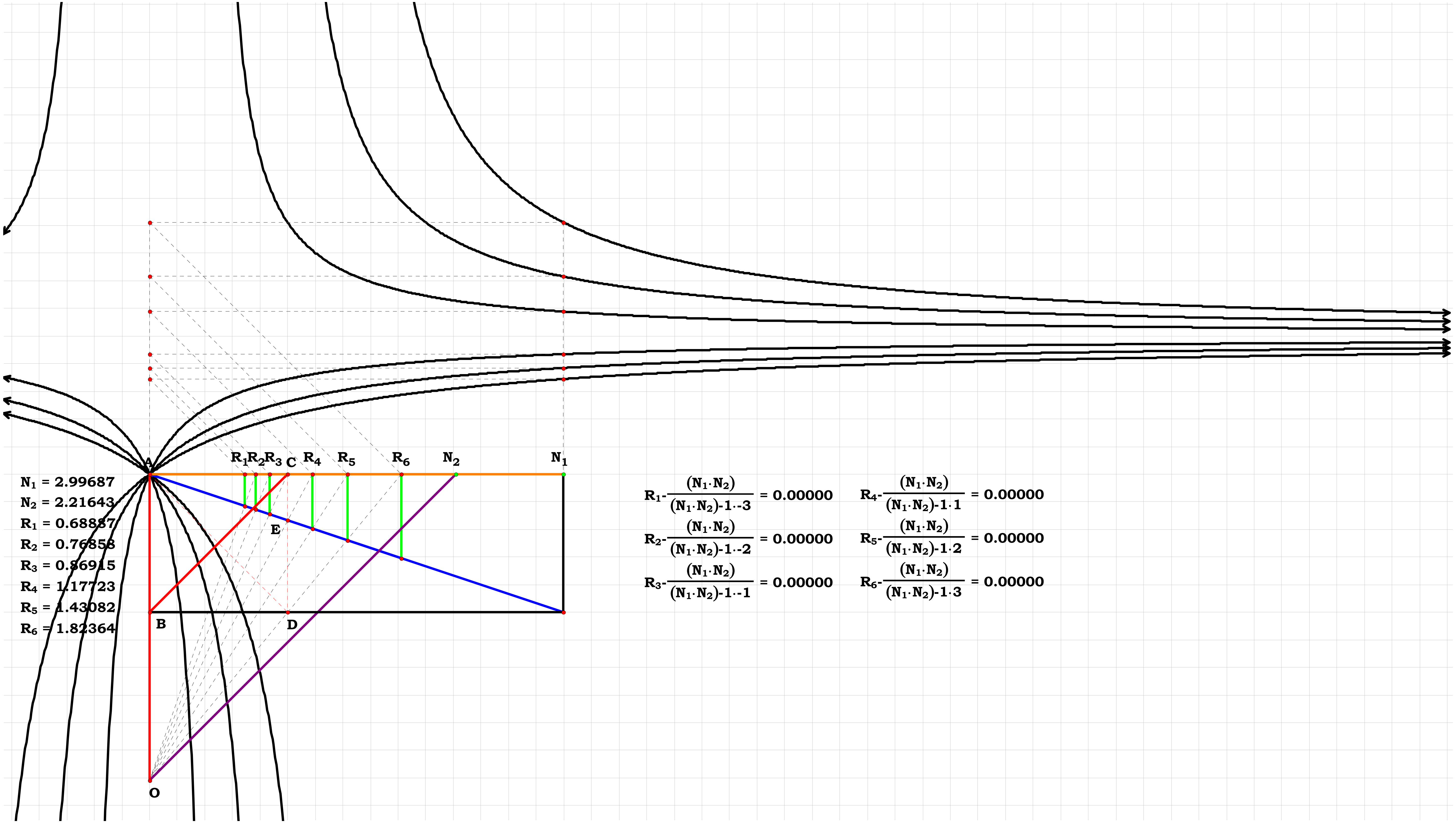


$N_1 = 2.00000$

$N_2 = 6.00000$

A = 1.09091	G = 2.40000	M = -12.00000
B = 1.20000	H = 3.00000	N = -6.00000
C = 1.33333	I = 4.00000	O = -4.00000
D = 1.50000	J = 6.00000	P = -3.00000
E = 1.71429	K = 12.00000	Q = -2.40000
F = 2.00000	L = $-8.34511 \cdot 10^{13}$	R = -2.00000





A
R_1 R_2 R_3 C R_4 R_5 R_6 N_2 N_1
E
B
D
O
$N_1 = 2.99687$
$N_2 = 2.21643$
$R_1 = 0.68887$
$R_2 = 0.76858$
$R_3 = 0.86915$
$R_4 = 1.17723$
$R_5 = 1.43082$
$R_6 = 1.82364$
$R_1 - \frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2) - 1 \cdot -3} = 0.00000$
$R_2 - \frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2) - 1 \cdot -2} = 0.00000$
$R_3 - \frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2) - 1 \cdot -1} = 0.00000$
$R_4 - \frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2) - 1 \cdot 1} = 0.00000$
$R_5 - \frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2) - 1 \cdot 2} = 0.00000$
$R_6 - \frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2) - 1 \cdot 3} = 0.00000$

$AB := 1$

$N_1 := 4.76977$

$N_2 := 3.17324$

$N_3 := .56832$

Fractional Series Introduction 3

$$R_4 := \frac{N_1}{N_2} \qquad AO := 1 + N_3 \qquad EH := \frac{N_1 - R_4}{N_1}$$

$$R_5 := \frac{AO \cdot R_4}{EH + N_3} \qquad R_6 := \frac{AO \cdot R_5}{\dfrac{N_1 - R_5}{N_1} + N_3}$$

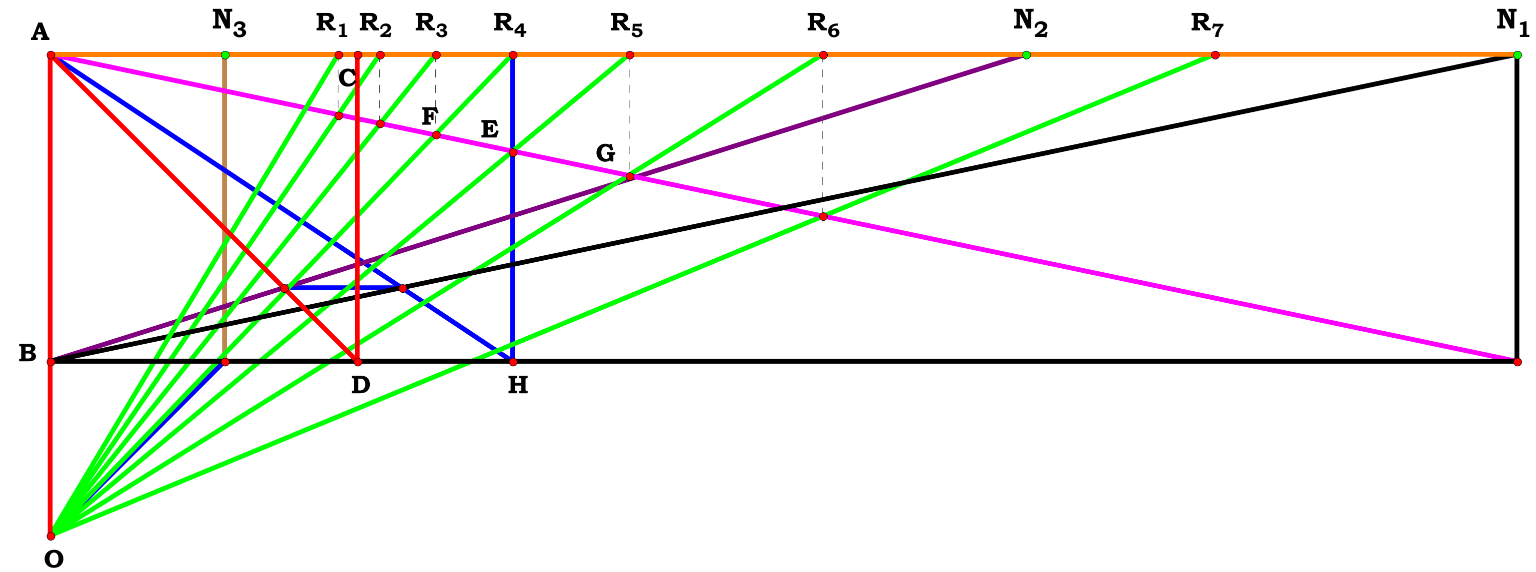
$$R_4 - \frac{N_1 \cdot (N_3 + 1)}{N_2 + N_2 \cdot N_3} = 0 \qquad R_5 - \frac{N_1 \cdot (N_3 + 1)}{N_2 + N_2 \cdot N_3 - 1} = 0$$

$$R_6 - \frac{N_1 \cdot (N_3 + 1)}{N_2 + N_2 \cdot N_3 - 2} = 0 \qquad \frac{N_1 \cdot (N_3 + 1)}{N_2 + N_2 \cdot N_3 + 1} = 1.251624$$

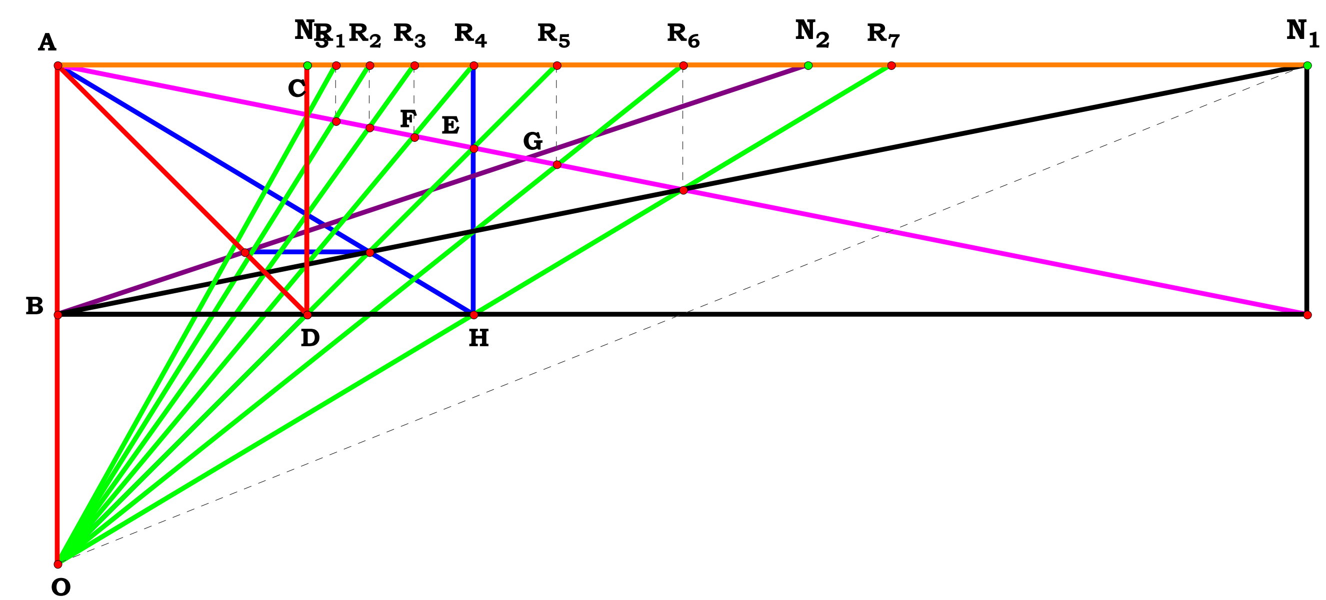
$$\frac{N_1 \cdot (N_3 + 1)}{N_2 + N_2 \cdot N_3 + 2} = 1.072222 \qquad \frac{N_1 \cdot (N_3 + 1)}{N_2 + N_2 \cdot N_3 + 3} = 0.937802$$

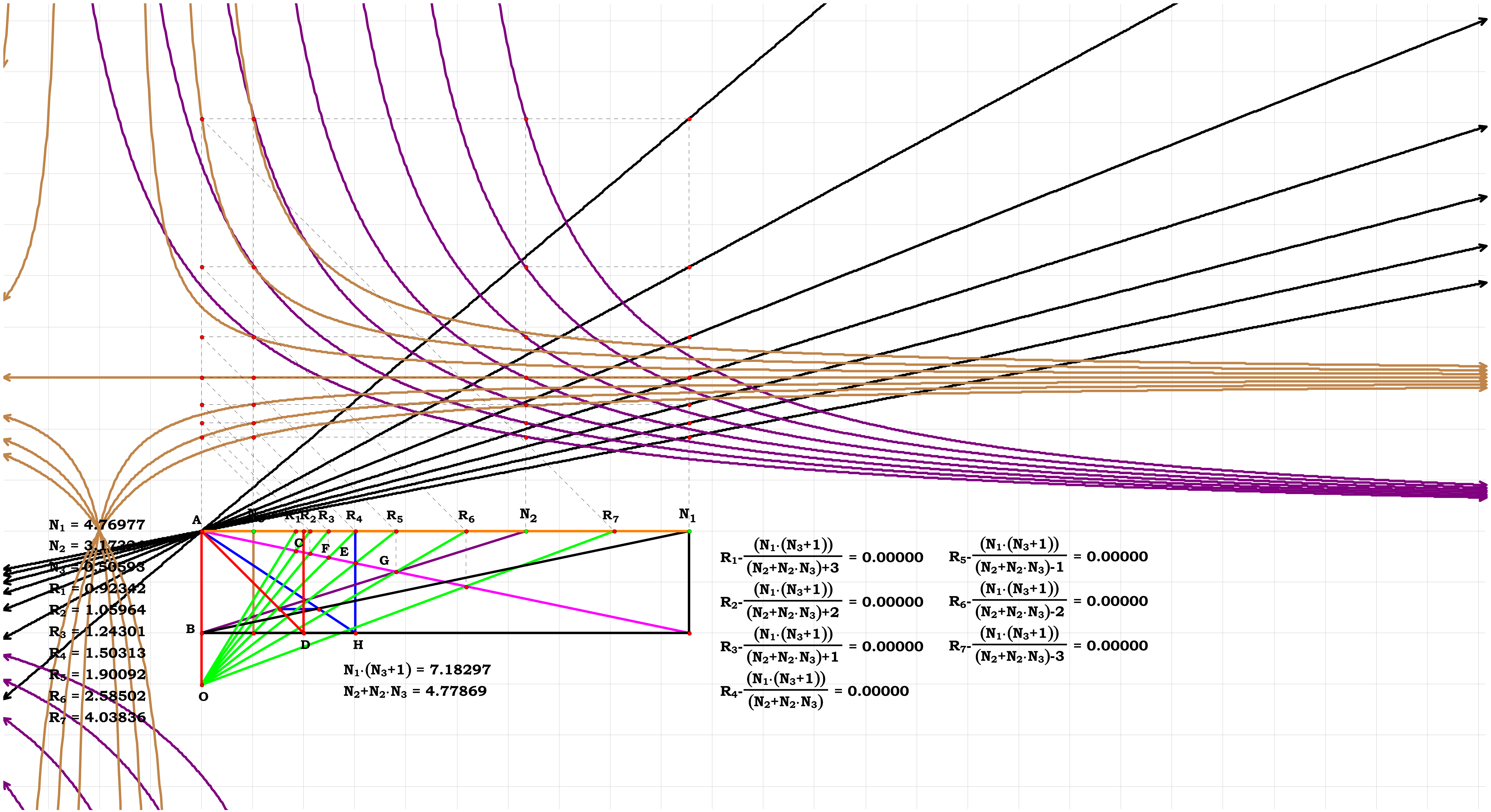
$$\frac{N_1 \cdot (N_3 + 1)}{N_2 + N_2 \cdot N_3 - 3} = 3.784435 \qquad \frac{N_1 \cdot (N_3 + 1)}{N_2 + N_2 \cdot N_3 - \text{Index}}$$

$N_1 = 4.76977$
$N_2 = 3.17324$
$N_3 = 0.56832$
$R_1 = 0.93780$
$R_2 = 1.07222$
$R_3 = 1.25163$
$R_4 = 1.50313$
$R_5 = 1.88112$
$R_6 = 2.51308$
$R_7 = 3.78447$



$N_1 = 5.00000$
$N_2 = 3.00000$
$N_3 = 1.00000$
$R_1 = 1.11111$
$R_2 = 1.25000$
$R_3 = 1.42857$
$R_4 = 1.66667$
$R_5 = 2.00000$
$R_6 = 2.50000$
$R_7 = 3.33333$





A
B
O
D
H
C
F
E
G
R_1
R_2
R_3
R_4
R_5
R_6
N_2
R_7
N_1
$N_1 = 4.76977$
$N_3 = 0.50593$
$R_1 = 0.92342$
$R_2 = 1.05964$
$R_3 = 1.24301$
$R_4 = 1.50313$
$R_5 = 1.90092$
$R_6 = 2.58502$
$R_7 = 4.03836$
$N_1 \cdot (N_3+1) = 7.18297$
$N_2+N_2 \cdot N_3 = 4.77869$
$R_1 - \frac{(N_1 \cdot (N_3+1))}{(N_2+N_2 \cdot N_3)+3} = 0.00000$
$R_2 - \frac{(N_1 \cdot (N_3+1))}{(N_2+N_2 \cdot N_3)+2} = 0.00000$
$R_3 - \frac{(N_1 \cdot (N_3+1))}{(N_2+N_2 \cdot N_3)+1} = 0.00000$
$R_4 - \frac{(N_1 \cdot (N_3+1))}{(N_2+N_2 \cdot N_3)} = 0.00000$
$R_5 - \frac{(N_1 \cdot (N_3+1))}{(N_2+N_2 \cdot N_3)-1} = 0.00000$
$R_6 - \frac{(N_1 \cdot (N_3+1))}{(N_2+N_2 \cdot N_3)-2} = 0.00000$
$R_7 - \frac{(N_1 \cdot (N_3+1))}{(N_2+N_2 \cdot N_3)-3} = 0.00000$

$AB := 1$

$N_1 := 3.81433$

$N_2 := 6$

Fractional Series Introduction 4

$$DE := \frac{1}{N_1} \quad BF := \frac{N_2}{1 - DE} \quad CG := \frac{1}{BF}$$

$$R_1 := \frac{1}{1 - CG}$$

$$R_1 - \frac{N_1 \cdot N_2}{N_1 \cdot N_2 - (N_1 - 1)} = 0$$

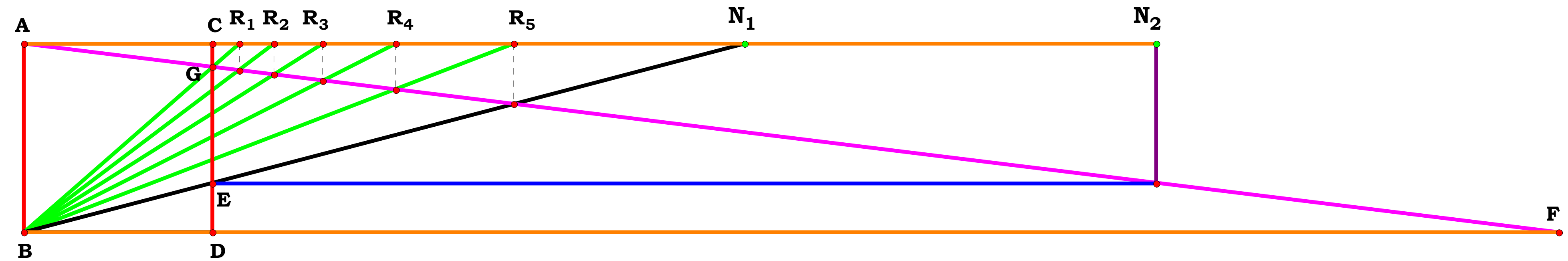
$$\frac{N_1 \cdot N_2}{N_1 \cdot N_2 - \mathrm{Index} \cdot (N_1 - 1)}$$

$$\frac{N_1 \cdot N_2}{N_1 \cdot N_2 - (N_1 - 1) \cdot 2} = 1.326161$$

$$\frac{N_1 \cdot N_2}{N_1 \cdot N_2 - (N_1 - 1) \cdot 3} = 1.584574$$

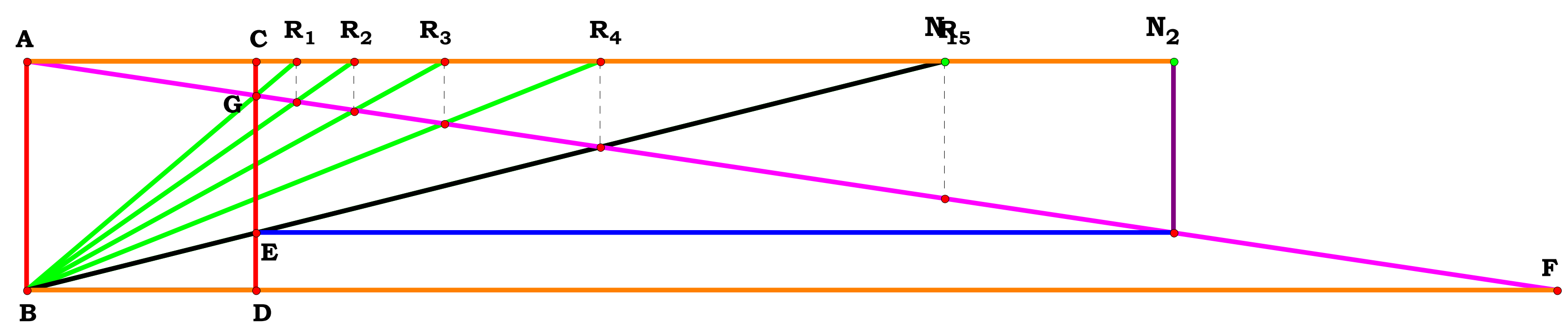
$$\frac{N_1 \cdot N_2}{N_1 \cdot N_2 - (N_1 - 1) \cdot 4} = 1.968067$$

$$\frac{N_1 \cdot N_2}{N_1 \cdot N_2 - (N_1 - 1) \cdot 5} = 2.596451$$



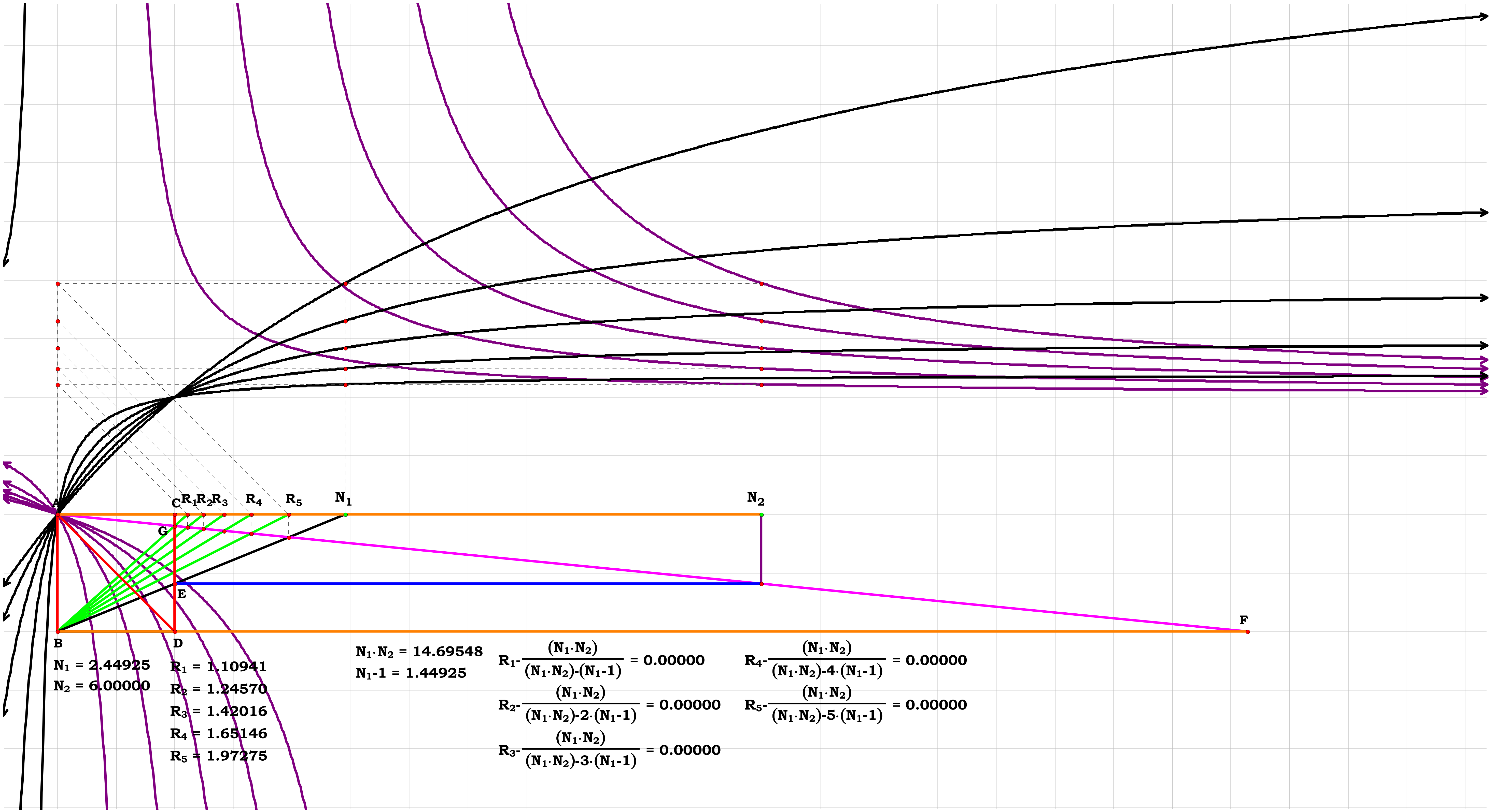
$N_1 = 3.81433$
$N_2 = 6.00000$

$R_1 = 1.14021$
$R_2 = 1.32616$
$R_3 = 1.58457$
$R_4 = 1.96807$
$R_5 = 2.59645$



$N_1 = 4.00000$
$N_2 = 5.00000$

$R_1 = 1.17647$
$R_2 = 1.42857$
$R_3 = 1.81818$
$R_4 = 2.50000$
$R_5 = 4.00000$



A
B
C
D
E
F
G
N1
N2
R1
R2
R3
R4
R5
N1 = 2.44925
N2 = 6.00000
R1 = 1.10941
R2 = 1.24570
R3 = 1.42016
R4 = 1.65146
R5 = 1.97275
N1·N2 = 14.69548
N1-1 = 1.44925
$R_1 - \frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2) - (N_1 - 1)} = 0.00000$
$R_2 - \frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2) - 2 \cdot (N_1 - 1)} = 0.00000$
$R_3 - \frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2) - 3 \cdot (N_1 - 1)} = 0.00000$
$R_4 - \frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2) - 4 \cdot (N_1 - 1)} = 0.00000$
$R_5 - \frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2) - 5 \cdot (N_1 - 1)} = 0.00000$

$AB := 1$

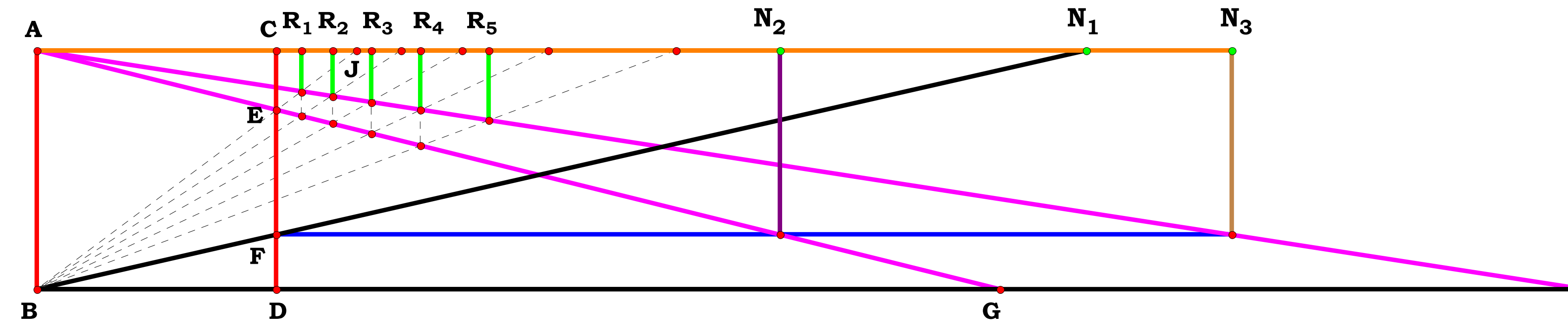
$N_1 := 4.37776$

$N_2 := 3.10140$

$N_3 := 4.98355$

Fractional Series Introduction 5

$N_1 = 4.37776$
$N_2 = 3.10140$
$N_3 = 4.98355$
$R_1 = 1.10370$
$R_2 = 1.23140$
$R_3 = 1.39252$
$R_4 = 1.60214$
$R_5 = 1.88605$



$$DF := \frac{1}{N_1} \qquad BG := \frac{N_2}{1 - DF} \qquad BH := \frac{N_3}{1 - DF}$$

$$CE := \frac{1}{BG} \qquad AJ := \frac{1}{1 - CE} \qquad R_1 := \frac{BH \cdot AJ}{BH + AJ}$$

$$R_1 - \frac{N_1 \cdot N_2 \cdot N_3}{N_1 \cdot N_2 \cdot N_3 + (N_1 - 1) \cdot (N_2 - N_3)} = 0$$

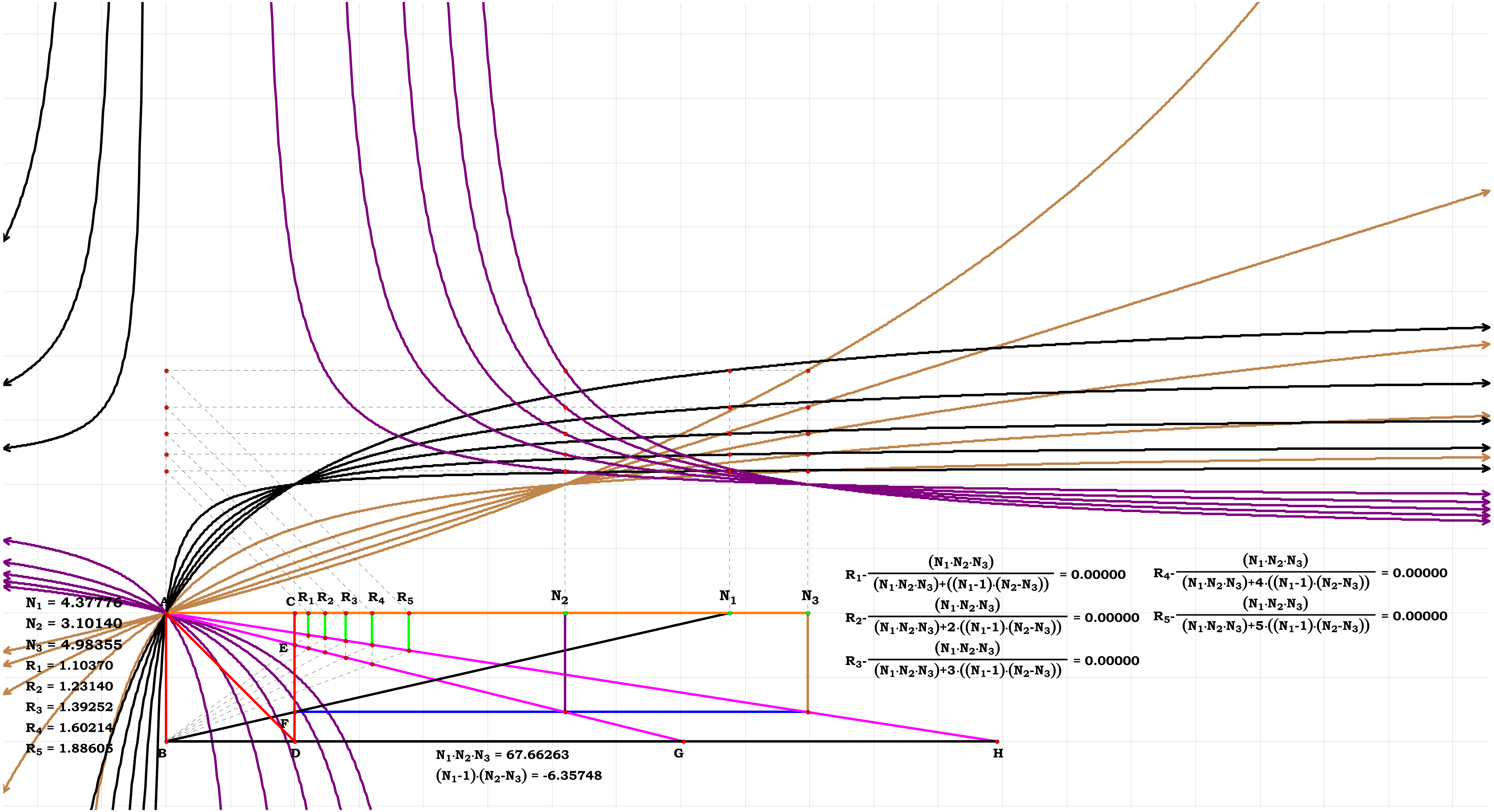
$$\frac{N_1 \cdot N_2 \cdot N_3}{N_1 \cdot N_2 \cdot N_3 + \text{Index} \cdot (N_1 - 1) \cdot (N_2 - N_3)}$$

$$\frac{N_1 \cdot N_2 \cdot N_3}{N_1 \cdot N_2 \cdot N_3 + 2 \cdot (N_1 - 1) \cdot (N_2 - N_3)} = 1.2314$$

$$\frac{N_1 \cdot N_2 \cdot N_3}{N_1 \cdot N_2 \cdot N_3 + 3 \cdot (N_1 - 1) \cdot (N_2 - N_3)} = 1.392514$$

$$\frac{N_1 \cdot N_2 \cdot N_3}{N_1 \cdot N_2 \cdot N_3 + 4 \cdot (N_1 - 1) \cdot (N_2 - N_3)} = 1.602134$$

$$\frac{N_1 \cdot N_2 \cdot N_3}{N_1 \cdot N_2 \cdot N_3 + 5 \cdot (N_1 - 1) \cdot (N_2 - N_3)} = 1.886048$$



A
B
C
D
E
F
G
H
R1 R2 R3 R4 R5
N2
N1
N3
N1 = 4.37776
N2 = 3.10140
N3 = 4.98355
R1 = 1.10370
R2 = 1.23140
R3 = 1.39252
R4 = 1.60214
R5 = 1.88605
N1·N2·N3 = 67.66263
(N1-1)·(N2-N3) = -6.35748
R1-(N1·N2·N3)/((N1·N2·N3)+((N1-1)·(N2-N3))) = 0.00000
R2-(N1·N2·N3)/((N1·N2·N3)+2·((N1-1)·(N2-N3))) = 0.00000
R3-(N1·N2·N3)/((N1·N2·N3)+3·((N1-1)·(N2-N3))) = 0.00000
R4-(N1·N2·N3)/((N1·N2·N3)+4·((N1-1)·(N2-N3))) = 0.00000
R5-(N1·N2·N3)/((N1·N2·N3)+5·((N1-1)·(N2-N3))) = 0.00000

$N = 10.00000$

$F_1 = 1.11111$

$F_2 = 1.25000$

$F_3 = 1.42857$

$F_4 = 1.66667$

$F_5 = 2.00000$

$F_6 = 2.50000$

$F_7 = 3.33333$

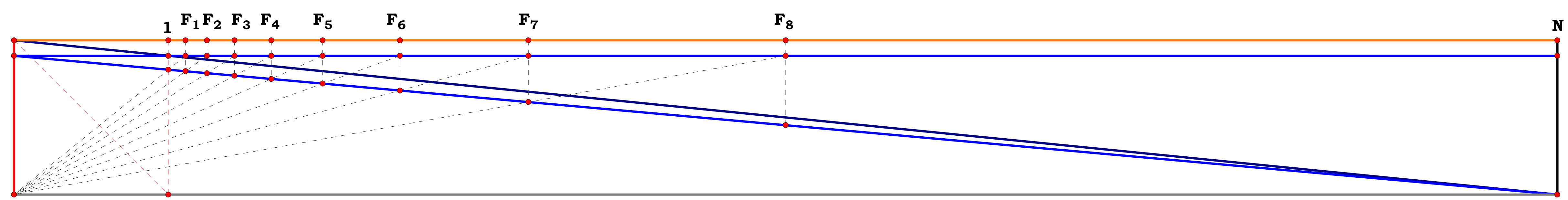
$F_8 = 5.00000$

$$\frac{N}{N-1} - F_1 = 0.00000 \quad \frac{N}{N-5} - F_5 = 0.00000$$

$$\frac{N}{N-2} - F_2 = 0.00000 \quad \frac{N}{N-6} - F_6 = 0.00000$$

$$\frac{N}{N-3} - F_3 = 0.00000 \quad \frac{N}{N-7} - F_7 = 0.00000$$

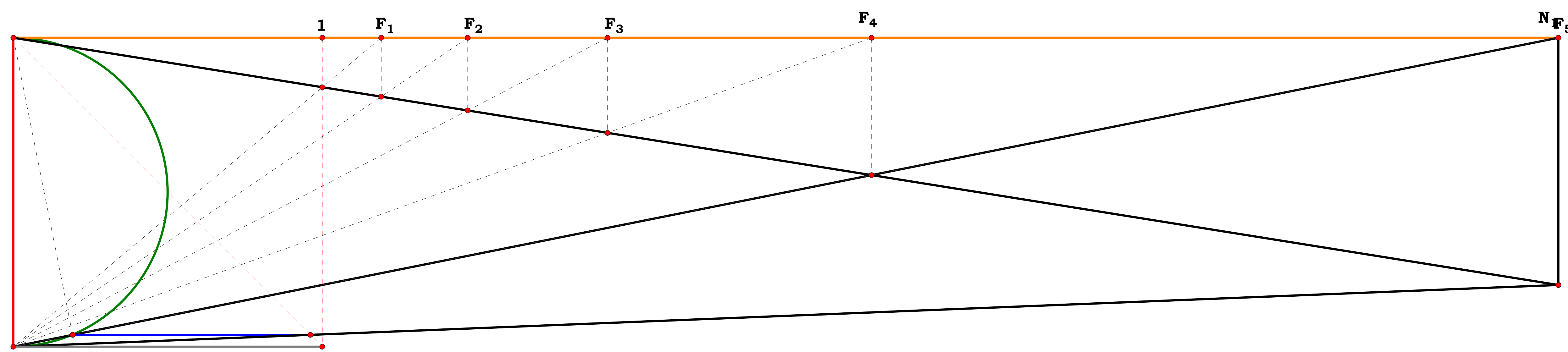
$$\frac{N}{N-4} - F_4 = 0.00000 \quad \frac{N}{N-8} - F_8 = 0.00000$$



$N_1 = 5.00000$
$F_1 = 1.19048$
$F_2 = 1.47059$
$F_3 = 1.92308$
$F_4 = 2.77778$
$F_5 = 5.00000$

$$\frac{N_1^2}{N_1^2-(N_1-1)}-F_1 = 0.00000$$
$$\frac{N_1^2}{N_1^2-2\cdot(N_1-1)}-F_2 = 0.00000$$
$$\frac{N_1^2}{N_1^2-3\cdot(N_1-1)}-F_3 = 0.00000$$
$$\frac{N_1^2}{N_1^2-4\cdot(N_1-1)}-F_4 = 0.00000$$
$$\frac{N_1^2}{N_1^2-5\cdot(N_1-1)}-F_5 = 0.00000$$

$N_1^2 = 25.00000$
$N_1-1 = 4.00000$



$N_1^2 = 100.00000$

$N_1 - 1 = 9.00000$

$N_1 = 10.00000$

$F_1 = 1.09890$

$F_2 = 1.21951$

$F_3 = 1.36986$

$F_4 = 1.56250$

$F_5 = 1.81818$

$F_6 = 2.17391$

$F_7 = 2.70270$

$F_8 = 3.57143$

$F_9 = 5.26316$

$$\frac{N_1^2}{N_1^2-(N_1-1)} - F_1 = 0.00000$$

$$\frac{N_1^2}{N_1^2-2\cdot(N_1-1)} - F_2 = 0.00000$$

$$\frac{N_1^2}{N_1^2-3\cdot(N_1-1)} - F_3 = 0.00000$$

$$\frac{N_1^2}{N_1^2-4\cdot(N_1-1)} - F_4 = 0.00000$$

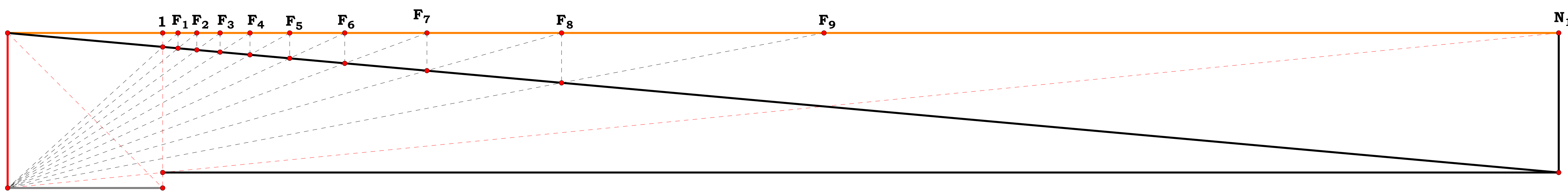
$$\frac{N_1^2}{N_1^2-5\cdot(N_1-1)} - F_5 = 0.00000$$

$$\frac{N_1^2}{N_1^2-6\cdot(N_1-1)} - F_6 = 0.00000$$

$$\frac{N_1^2}{N_1^2-7\cdot(N_1-1)} - F_7 = 0.00000$$

$$\frac{N_1^2}{N_1^2-8\cdot(N_1-1)} - F_8 = 0.00000$$

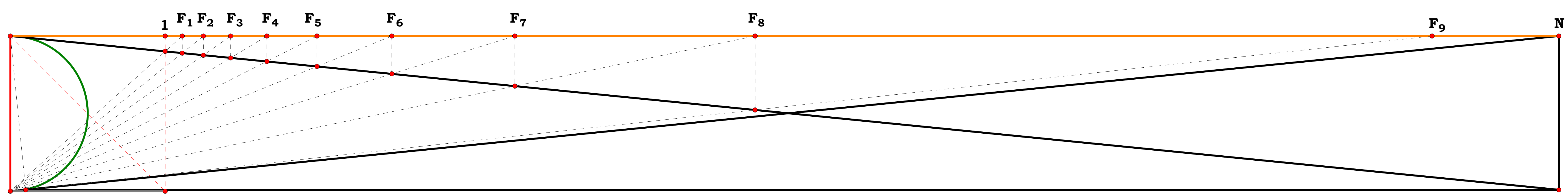
$$\frac{N_1^2}{N_1^2-9\cdot(N_1-1)} - F_9 = 0.00000$$



$N = 10.00000$
$F_1 = 1.10989$
$F_2 = 1.24691$
$F_3 = 1.42254$
$F_4 = 1.65574$
$F_5 = 1.98039$
$F_6 = 2.46341$
$F_7 = 3.25806$
$F_8 = 4.80952$

$F_9 = 9.18182$
$N^2+1 = 101.00000$

$$\frac{(N^2+1)}{(N^2+1)-N}-F_1 = 0.00000$$
$$\frac{(N^2+1)}{(N^2+1)-2\cdot N}-F_2 = 0.00000$$
$$\frac{(N^2+1)}{(N^2+1)-3\cdot N}-F_3 = 0.00000$$
$$\frac{(N^2+1)}{(N^2+1)-4\cdot N}-F_4 = 0.00000$$
$$\frac{(N^2+1)}{(N^2+1)-5\cdot N}-F_5 = 0.00000$$
$$\frac{(N^2+1)}{(N^2+1)-6\cdot N}-F_6 = 0.00000$$
$$\frac{(N^2+1)}{(N^2+1)-7\cdot N}-F_7 = 0.00000$$
$$\frac{(N^2+1)}{(N^2+1)-8\cdot N}-F_8 = 0.00000$$
$$\frac{(N^2+1)}{(N^2+1)-9\cdot N}-F_9 = 0.00000$$



$N_1 = 4.00000$
$F_1 = 1.04918$
$F_2 = 1.10345$
$F_3 = 1.16364$
$F_4 = 1.23077$
$F_5 = 1.30612$
$F_6 = 1.39130$
$F_7 = 1.48837$

$F_8 = 1.60000$
$F_9 = 1.72973$
$F_{10} = 1.88235$
$F_{11} = 2.06452$
$F_{12} = 2.28571$
$F_{13} = 2.56000$
$F_{14} = 2.90909$
$F_{15} = 3.36842$

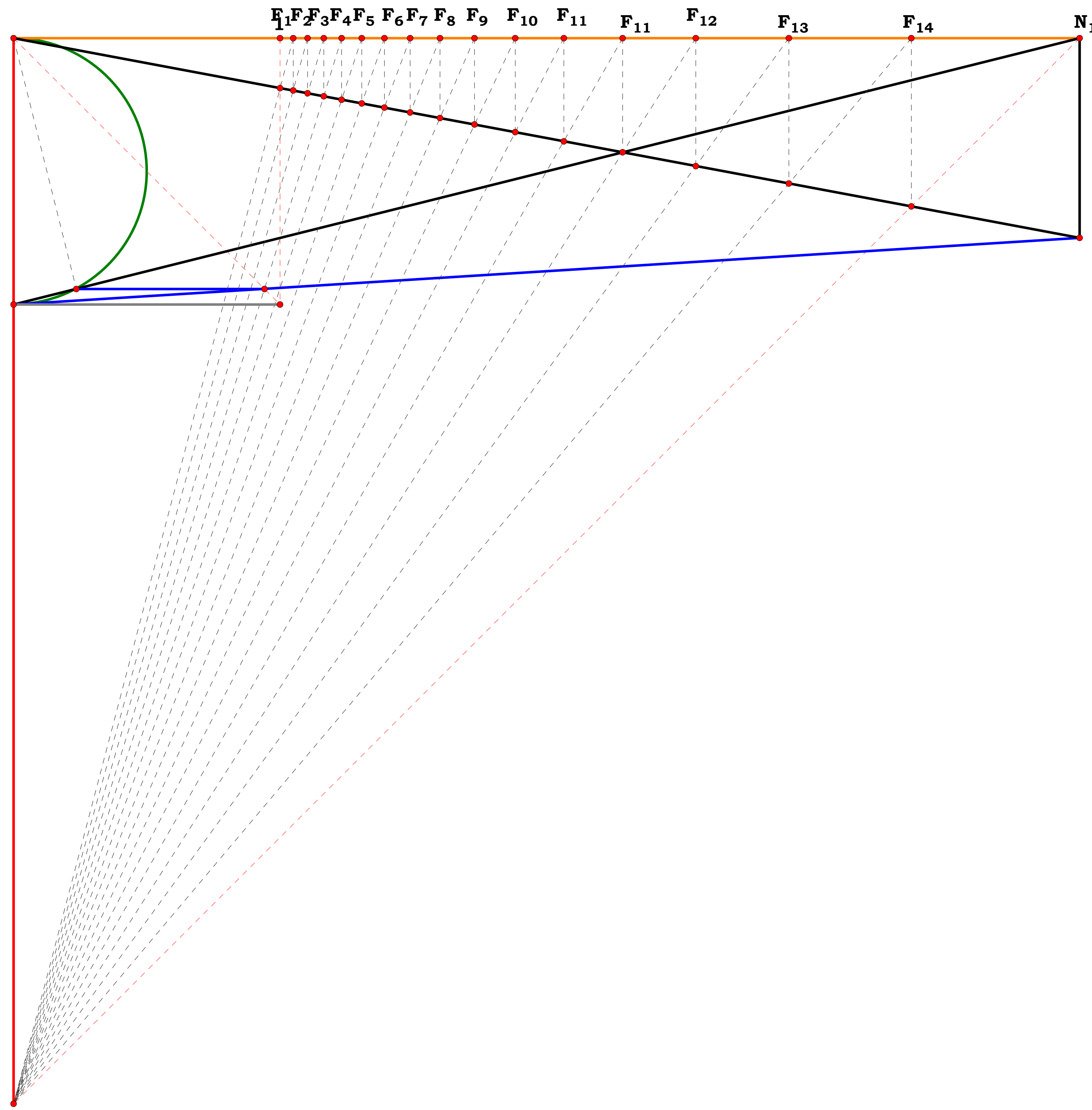
$N_1^3 = 64.00000$
$N_1\text{-}1 = 3.00000$

$\frac{N_1^3}{N_1^3-(N_1-1)}-F_1 = 0.00000$
$\frac{N_1^3}{N_1^3-2\cdot(N_1-1)}-F_2 = 0.00000$
$\frac{N_1^3}{N_1^3-3\cdot(N_1-1)}-F_3 = 0.00000$
$\frac{N_1^3}{N_1^3-4\cdot(N_1-1)}-F_4 = 0.00000$

$\frac{N_1^3}{N_1^3-5\cdot(N_1-1)}-F_5 = 0.00000$
$\frac{N_1^3}{N_1^3-6\cdot(N_1-1)}-F_6 = 0.00000$
$\frac{N_1^3}{N_1^3-7\cdot(N_1-1)}-F_7 = 0.00000$
$\frac{N_1^3}{N_1^3-8\cdot(N_1-1)}-F_8 = 0.00000$

$\frac{N_1^3}{N_1^3-9\cdot(N_1-1)}-F_9 = 0.00000$
$\frac{N_1^3}{N_1^3-10\cdot(N_1-1)}-F_{10} = 0.00000$
$\frac{N_1^3}{N_1^3-11\cdot(N_1-1)}-F_{11} = 0.00000$
$\frac{N_1^3}{N_1^3-12\cdot(N_1-1)}-F_{12} = 0.00000$

$\frac{N_1^3}{N_1^3-13\cdot(N_1-1)}-F_{13} = 0.00000$
$\frac{N_1^3}{N_1^3-14\cdot(N_1-1)}-F_{14} = 0.00000$
$\frac{N_1^3}{N_1^3-15\cdot(N_1-1)}-F_{15} = 0.00000$



$N = 5.00000$

$F_1 = 1.03960$

$F_2 = 1.08247$

$F_3 = 1.12903$

$F_4 = 1.17978$

$F_5 = 1.23529$

$F_6 = 1.29630$

$F_7 = 1.36364$

$F_8 = 1.43836$

$F_9 = 1.52174$

$F_{10} = 1.61538$

$F_{11} = 1.72131$

$F_{12} = 1.84211$

$F_{13} = 1.98113$

$F_{14} = 2.14286$

$F_{15} = 2.33333$

$F_{16} = 2.56098$

$F_{17} = 2.83784$

$F_{18} = 3.18182$

$F_{19} = 3.62069$

$F_{20} = 4.20000$

$N^3 = 125.00000$

$(N^3-N^2)+N = 105.00000$

$N-1 = 4.00000$

$F_0 = 1.19048$

$$\frac{((N^3-N^2)+N)}{N^3-(N-1)\cdot(N+1)}-F_1 = 0.00000$$

$$\frac{((N^3-N^2)+N)}{N^3-(N-1)\cdot(N+2)}-F_2 = 0.00000$$

$$\frac{((N^3-N^2)+N)}{N^3-(N-1)\cdot(N+3)}-F_3 = 0.00000$$

$$\frac{((N^3-N^2)+N)}{N^3-(N-1)\cdot(N+4)}-F_4 = 0.00000$$

$$\frac{((N^3-N^2)+N)}{N^3-(N-1)\cdot(N+5)}-F_5 = 0.00000$$

$$\frac{((N^3-N^2)+N)}{N^3-(N-1)\cdot(N+6)}-F_6 = 0.00000$$

$$\frac{((N^3-N^2)+N)}{N^3-(N-1)\cdot(N+7)}-F_7 = 0.00000$$

$$\frac{((N^3-N^2)+N)}{N^3-(N-1)\cdot(N+8)}-F_8 = 0.00000$$

$$\frac{((N^3-N^2)+N)}{N^3-(N-1)\cdot(N+9)}-F_9 = 0.00000$$

$$\frac{((N^3-N^2)+N)}{N^3-(N-1)\cdot(N+10)}-F_{10} = 0.00000$$

$$\frac{((N^3-N^2)+N)}{N^3-(N-1)\cdot(N+11)}-F_{11} = 0.00000$$

$$\frac{((N^3-N^2)+N)}{N^3-(N-1)\cdot(N+12)}-F_{12} = 0.00000$$

$$\frac{((N^3-N^2)+N)}{N^3-(N-1)\cdot(N+13)}-F_{13} = 0.00000$$

$$\frac{((N^3-N^2)+N)}{N^3-(N-1)\cdot(N+14)}-F_{14} = 0.00000$$

$$\frac{((N^3-N^2)+N)}{N^3-(N-1)\cdot(N+15)}-F_{15} = 0.00000$$

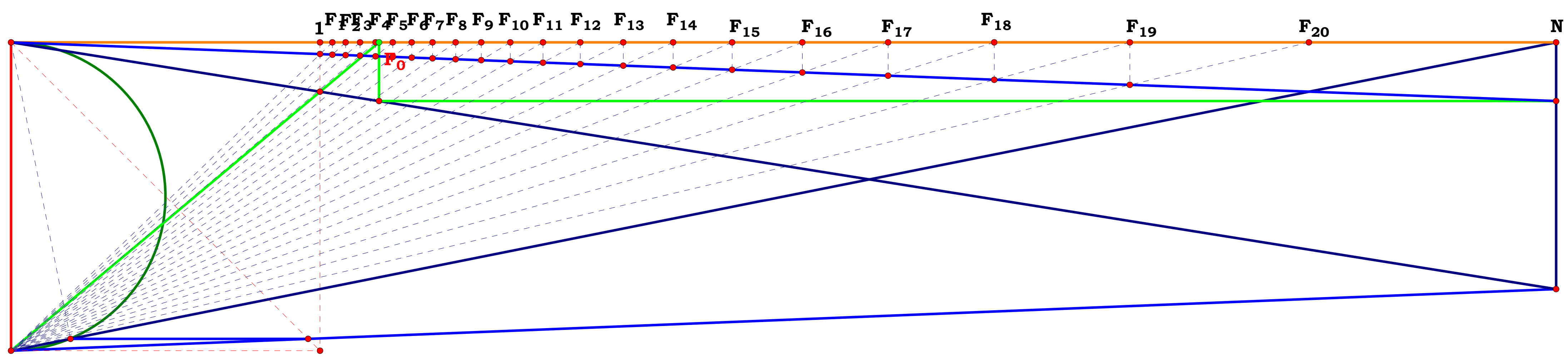
$$\frac{((N^3-N^2)+N)}{N^3-(N-1)\cdot(N+16)}-F_{16} = 0.00000$$

$$\frac{((N^3-N^2)+N)}{N^3-(N-1)\cdot(N+17)}-F_{17} = 0.00000$$

$$\frac{((N^3-N^2)+N)}{N^3-(N-1)\cdot(N+18)}-F_{18} = 0.00000$$

$$\frac{((N^3-N^2)+N)}{N^3-(N-1)\cdot(N+19)}-F_{19} = 0.00000$$

$$\frac{((N^3-N^2)+N)}{N^3-(N-1)\cdot(N+20)}-F_{20} = 0.00000$$



$N = 9.00000$

$F_1 = 1.11111$

$F_2 = 1.25000$

$F_3 = 1.42857$

$F_4 = 1.66667$

$F_5 = 2.00000$

$F_6 = 2.50000$

$F_7 = 3.33333$

$F_8 = 5.00000$

$$\frac{(N+1)}{N} - F_1 = 0.00000$$

$$\frac{(N+1)}{N-1} - F_2 = 0.00000$$

$$\frac{(N+1)}{N-2} - F_3 = 0.00000$$

$$\frac{(N+1)}{N-3} - F_4 = 0.00000$$

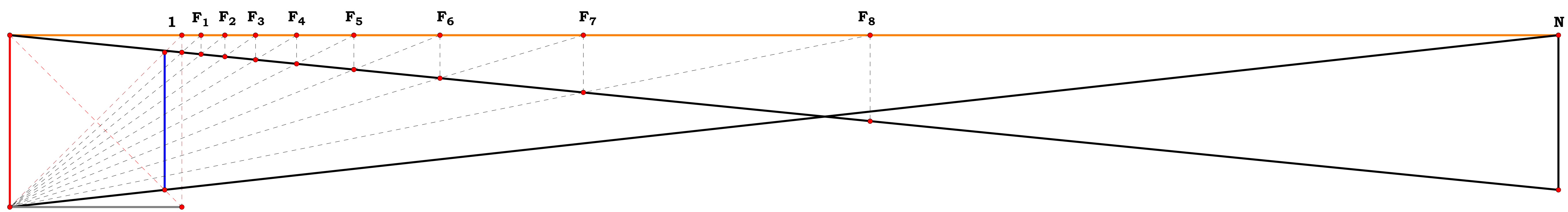
$$\frac{(N+1)}{N-4} - F_5 = 0.00000$$

$$\frac{(N+1)}{N-5} - F_6 = 0.00000$$

$$\frac{(N+1)}{N-6} - F_7 = 0.00000$$

$$\frac{(N+1)}{N-7} - F_8 = 0.00000$$

$N+1 = 10.00000$



$N_1 = 3.11160$

$N_1^3 = 30.12674$

$N_1 - 1 = 2.11160$

$F_1 = 1.07537$

$F_2 = 1.16304$

$F_3 = 1.26626$

$F_4 = 1.38959$

$F_5 = 1.53953$

$F_6 = 1.72576$

$F_7 = 1.96323$

$F_8 = 2.27648$

$F_9 = 2.70867$

$$\frac{N_1^3}{N_1^3 - (N_1 - 1)} - F_1 = 0.00000$$

$$\frac{N_1^3}{N_1^3 - 2 \cdot (N_1 - 1)} - F_2 = 0.00000$$

$$\frac{N_1^3}{N_1^3 - 3 \cdot (N_1 - 1)} - F_3 = 0.00000$$

$$\frac{N_1^3}{N_1^3 - 4 \cdot (N_1 - 1)} - F_4 = 0.00000$$

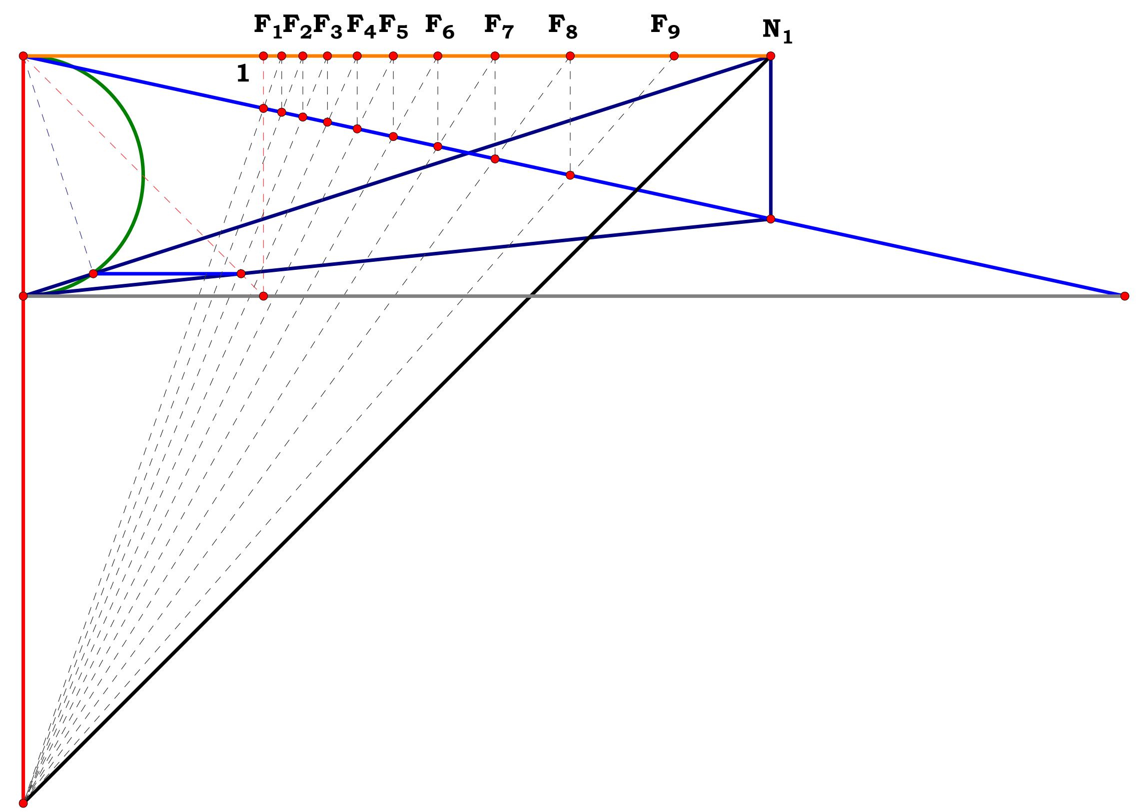
$$\frac{N_1^3}{N_1^3 - 5 \cdot (N_1 - 1)} - F_5 = 0.00000$$

$$\frac{N_1^3}{N_1^3 - 6 \cdot (N_1 - 1)} - F_6 = 0.00000$$

$$\frac{N_1^3}{N_1^3 - 7 \cdot (N_1 - 1)} - F_7 = 0.00000$$

$$\frac{N_1^3}{N_1^3 - 8 \cdot (N_1 - 1)} - F_8 = 0.00000$$

$$\frac{N_1^3}{N_1^3 - 9 \cdot (N_1 - 1)} - F_9 = 0.00000$$



$N_1 = 11.00000$

$N_2 = 10.00000$

$F_1 = 1.10000$

$F_2 = 1.22222$

$F_3 = 1.37500$

$F_4 = 1.57143$

$F_5 = 1.83333$

$F_6 = 2.20000$

$F_7 = 2.75000$

$F_8 = 3.66667$

$F_9 = 5.50000$

$\frac{N_1}{N_2} - F_1 = 0.00000$

$\frac{N_1}{N_2 - 1} - F_2 = 0.00000$

$\frac{N_1}{N_2 - 2} - F_3 = 0.00000$

$\frac{N_1}{N_2 - 3} - F_4 = 0.00000$

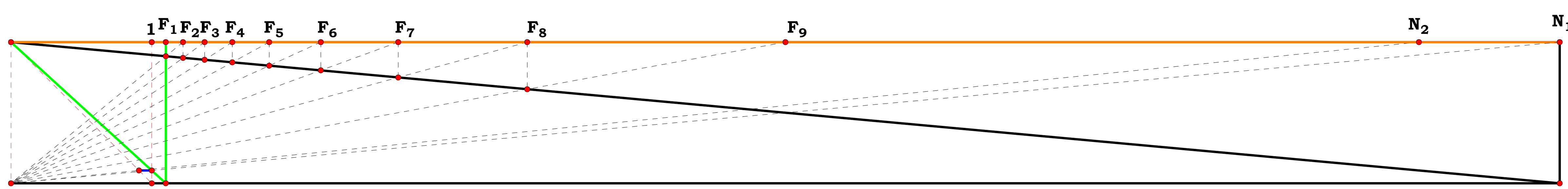
$\frac{N_1}{N_2 - 4} - F_5 = 0.00000$

$\frac{N_1}{N_2 - 5} - F_6 = 0.00000$

$\frac{N_1}{N_2 - 6} - F_7 = 0.00000$

$\frac{N_1}{N_2 - 7} - F_8 = 0.00000$

$\frac{N_1}{N_2 - 8} - F_9 = 0.00000$



If I want to divide any value whatsoever into any number of fractions whatsoever.

$N_1 = 8.00000$

$N_2 = 10.00000$

$N_1 \cdot N_2 = 80.00000$

$N_1 - 1 = 7.00000$

$F_1 = 1.09589$

$F_2 = 1.21212$

$F_3 = 1.35593$

$F_4 = 1.53846$

$F_5 = 1.77778$

$F_6 = 2.10526$

$F_7 = 2.58065$

$F_8 = 3.33333$

$F_9 = 4.70588$

$$\frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2)-(N_1-1)}-F_1 = 0.00000$$

$$\frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2)-2\cdot(N_1-1)}-F_2 = 0.00000$$

$$\frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2)-3\cdot(N_1-1)}-F_3 = 0.00000$$

$$\frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2)-4\cdot(N_1-1)}-F_4 = 0.00000$$

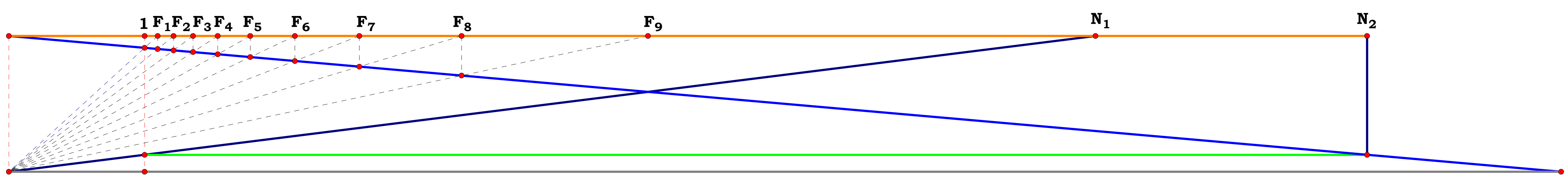
$$\frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2)-5\cdot(N_1-1)}-F_5 = 0.00000$$

$$\frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2)-6\cdot(N_1-1)}-F_6 = 0.00000$$

$$\frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2)-7\cdot(N_1-1)}-F_7 = 0.00000$$

$$\frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2)-8\cdot(N_1-1)}-F_8 = 0.00000$$

$$\frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2)-9\cdot(N_1-1)}-F_9 = 0.00000$$



$F_1 = 0.57143$
$F_2 = 0.66667$
$F_3 = 0.80000$
$F_4 = 1.00000$
$F_5 = 1.33333$
$F_6 = 2.00000$
$F_7 = 4.00000$

$\frac{N_1}{N_2}\text{-}F_1 = 0.00000$

$\frac{N_1}{N_2\text{-}1}\text{-}F_2 = 0.00000$

$\frac{N_1}{N_2\text{-}2}\text{-}F_3 = 0.00000$

$\frac{N_1}{N_2\text{-}3}\text{-}F_4 = 0.00000$

$\frac{N_1}{N_2\text{-}4}\text{-}F_5 = 0.00000$

$\frac{N_1}{N_2\text{-}5}\text{-}F_6 = 0.00000$

$\frac{N_1}{N_2\text{-}6}\text{-}F_7 = 0.00000$

$N_1 = 4.00000$
$N_2 = 7.00000$

01 = 3.08724 cm
12 = 3.08724 cm
23 = 3.08724 cm
34 = 3.08724 cm
45 = 3.08724 cm
56 = 3.08724 cm

110 = 3.08724 cm

$\frac{01}{01} = 1.00000$

$\frac{12}{01} = 1.00000$

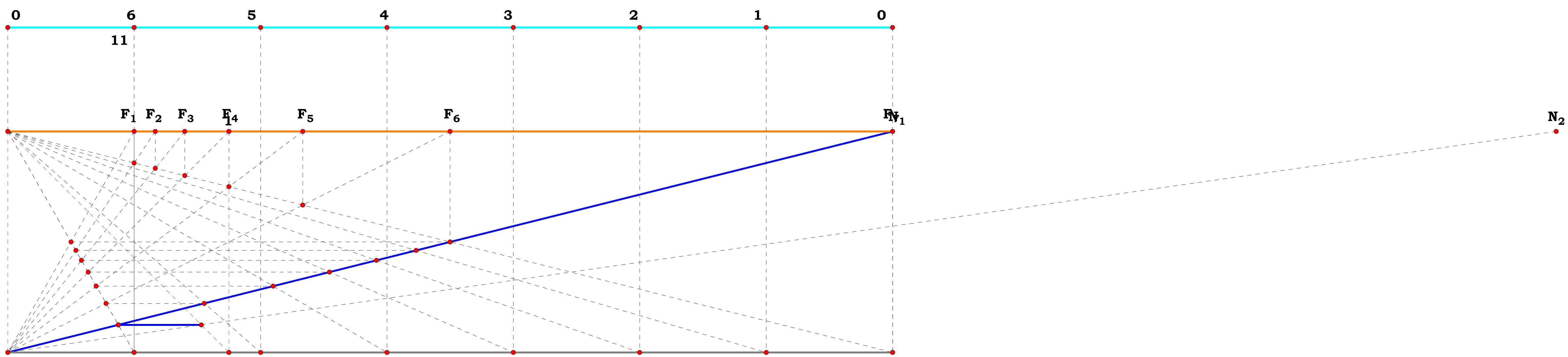
$\frac{23}{01} = 1.00000$

$\frac{34}{01} = 1.00000$

$\frac{45}{01} = 1.00000$

$\frac{56}{01} = 1.00000$

$\frac{110}{01} = 1.00000$



$(N_1+1)\cdot N_2 = 132.00000$

$N_1\cdot N_2 = 120.00000$

$N_1\text{-}N_2 = -2.00000$

$N_1 = 10.00000$

$N_2 = 12.00000$

$F_1 = 1.08197$

$F_2 = 1.17857$

$F_3 = 1.29412$

$F_4 = 1.43478$

$F_5 = 1.60976$

$F_6 = 1.83333$

$F_7 = 2.12903$

$F_8 = 2.53846$

$F_9 = 3.14286$

$F_{10} = 4.12500$

$F_{11} = 6.00000$

$$\frac{((N_1+1)\cdot N_2)}{(N_1\cdot N_2)-(N_1\text{-}N_2)}-F_1 = 0.00000$$

$$\frac{((N_1+1)\cdot N_2)}{(N_1\cdot N_2)-((N_1\text{-}N_2)+N_1)}-F_2 = 0.00000$$

$$\frac{((N_1+1)\cdot N_2)}{(N_1\cdot N_2)-((N_1\text{-}N_2)+2\cdot N_1)}-F_3 = 0.00000$$

$$\frac{((N_1+1)\cdot N_2)}{(N_1\cdot N_2)-((N_1\text{-}N_2)+3\cdot N_1)}-F_4 = 0.00000$$

$$\frac{((N_1+1)\cdot N_2)}{(N_1\cdot N_2)-((N_1\text{-}N_2)+4\cdot N_1)}-F_5 = 0.00000$$

$$\frac{((N_1+1)\cdot N_2)}{(N_1\cdot N_2)-((N_1\text{-}N_2)+5\cdot N_1)}-F_6 = 0.00000$$

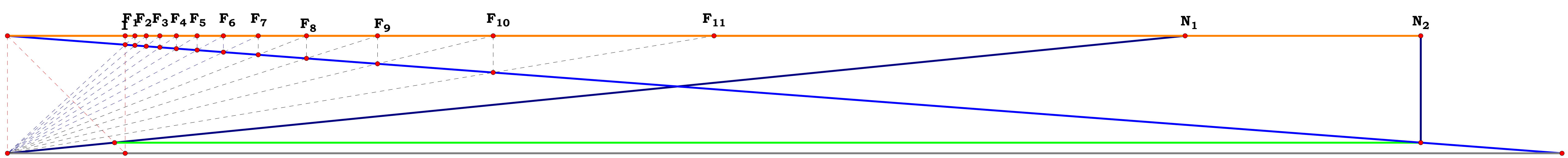
$$\frac{((N_1+1)\cdot N_2)}{(N_1\cdot N_2)-((N_1\text{-}N_2)+6\cdot N_1)}-F_7 = 0.00000$$

$$\frac{((N_1+1)\cdot N_2)}{(N_1\cdot N_2)-((N_1\text{-}N_2)+7\cdot N_1)}-F_8 = 0.00000$$

$$\frac{((N_1+1)\cdot N_2)}{(N_1\cdot N_2)-((N_1\text{-}N_2)+8\cdot N_1)}-F_9 = 0.00000$$

$$\frac{((N_1+1)\cdot N_2)}{(N_1\cdot N_2)-((N_1\text{-}N_2)+9\cdot N_1)}-F_{10} = 0.00000$$

$$\frac{((N_1+1)\cdot N_2)}{(N_1\cdot N_2)-((N_1\text{-}N_2)+10\cdot N_1)}-F_{11} = 0.00000$$



$N_1 = 5.00000$
$N_2 = 3.00000$

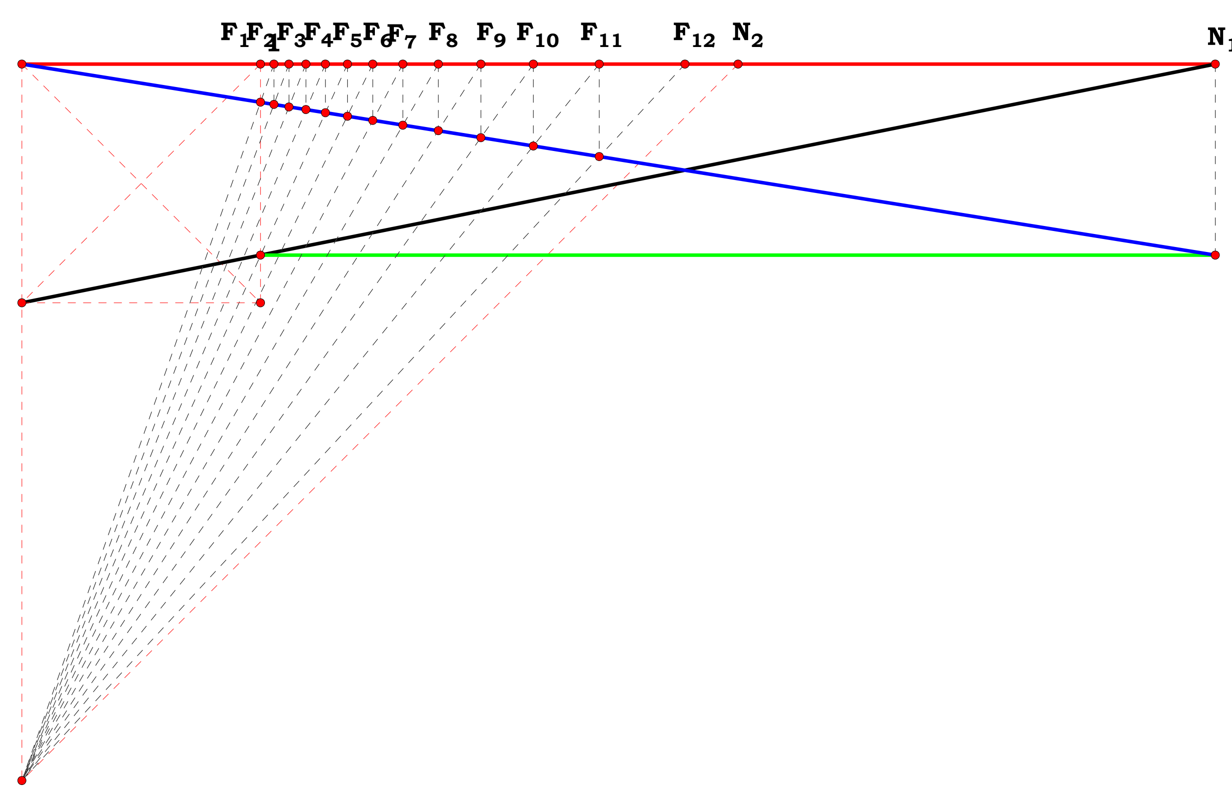
$N_1{}^2 \cdot N_2 = 75.00000$
$N_1 - 1 = 4.00000$

$F_1 = 1.05634$
$F_2 = 1.11940$
$F_3 = 1.19048$
$F_4 = 1.27119$
$F_5 = 1.36364$
$F_6 = 1.47059$

$F_7 = 1.59574$
$F_8 = 1.74419$
$F_9 = 1.92308$
$F_{10} = 2.14286$
$F_{11} = 2.41935$
$F_{12} = 2.77778$

$$\frac{(N_1{}^2 \cdot N_2)}{(N_1{}^2 \cdot N_2)-(N_1-1)}-F_1 = 0.00000$$
$$\frac{(N_1{}^2 \cdot N_2)}{(N_1{}^2 \cdot N_2)-2\cdot(N_1-1)}-F_2 = 0.00000$$
$$\frac{(N_1{}^2 \cdot N_2)}{(N_1{}^2 \cdot N_2)-3\cdot(N_1-1)}-F_3 = 0.00000$$
$$\frac{(N_1{}^2 \cdot N_2)}{(N_1{}^2 \cdot N_2)-4\cdot(N_1-1)}-F_4 = 0.00000$$
$$\frac{(N_1{}^2 \cdot N_2)}{(N_1{}^2 \cdot N_2)-5\cdot(N_1-1)}-F_5 = 0.00000$$
$$\frac{(N_1{}^2 \cdot N_2)}{(N_1{}^2 \cdot N_2)-6\cdot(N_1-1)}-F_6 = 0.00000$$

$$\frac{(N_1{}^2 \cdot N_2)}{(N_1{}^2 \cdot N_2)-7\cdot(N_1-1)}-F_7 = 0.00000$$
$$\frac{(N_1{}^2 \cdot N_2)}{(N_1{}^2 \cdot N_2)-8\cdot(N_1-1)}-F_8 = 0.00000$$
$$\frac{(N_1{}^2 \cdot N_2)}{(N_1{}^2 \cdot N_2)-9\cdot(N_1-1)}-F_9 = 0.00000$$
$$\frac{(N_1{}^2 \cdot N_2)}{(N_1{}^2 \cdot N_2)-10\cdot(N_1-1)}-F_{10} = 0.00000$$
$$\frac{(N_1{}^2 \cdot N_2)}{(N_1{}^2 \cdot N_2)-11\cdot(N_1-1)}-F_{11} = 0.00000$$
$$\frac{(N_1{}^2 \cdot N_2)}{(N_1{}^2 \cdot N_2)-12\cdot(N_1-1)}-F_{12} = 0.00000$$



$F_1 = 1.18762$
$F_2 = 1.25762$
$F_3 = 1.33639$
$F_4 = 1.42568$
$F_5 = 1.52777$
$F_6 = 1.64560$
$F_7 = 1.78312$
$F_8 = 1.94573$
$F_9 = 2.14097$
$F_{10} = 2.37976$

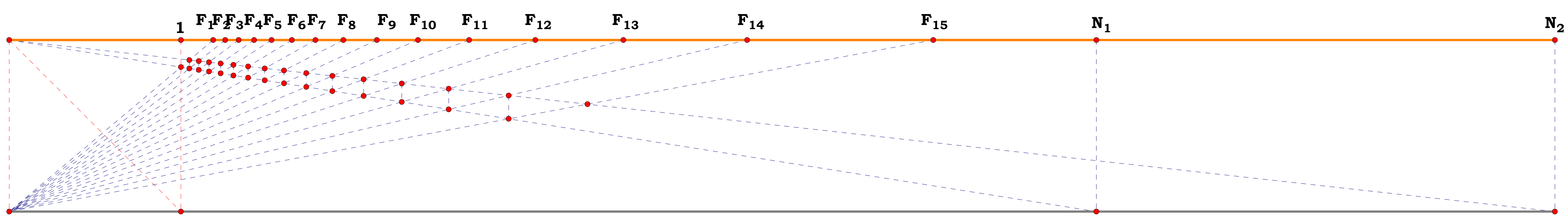
$F_{11} = 2.67851$
$F_{12} = 3.06302$
$F_{13} = 3.57645$
$F_{14} = 4.29666$
$F_{15} = 5.38007$

$N_1 = 6.32996$
$N_2 = 9.00000$

$N_1 \cdot N_2 = 56.96961$
$N_2 - N_1 = 2.67004$

$$\frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2) - N_2 - 0 \cdot (N_2 - N_1)} - F_1 = 0.00000$$
$$\frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2) - N_2 - (N_2 - N_1)} - F_2 = 0.00000$$
$$\frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2) - N_2 - 2 \cdot (N_2 - N_1)} - F_3 = 0.00000$$
$$\frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2) - N_2 - 3 \cdot (N_2 - N_1)} - F_4 = 0.00000$$
$$\frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2) - N_2 - 4 \cdot (N_2 - N_1)} - F_5 = 0.00000$$
$$\frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2) - N_2 - 5 \cdot (N_2 - N_1)} - F_6 = 0.00000$$
$$\frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2) - N_2 - 6 \cdot (N_2 - N_1)} - F_7 = 0.00000$$

$$\frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2) - N_2 - 8 \cdot (N_2 - N_1)} - F_8 = 0.19524$$
$$\frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2) - N_2 - 9 \cdot (N_2 - N_1)} - F_{10} = 0.00000$$
$$\frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2) - N_2 - 10 \cdot (N_2 - N_1)} - F_{11} = 0.00000$$
$$\frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2) - N_2 - 11 \cdot (N_2 - N_1)} - F_{12} = 0.00000$$
$$\frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2) - N_2 - 12 \cdot (N_2 - N_1)} - F_{13} = 0.00000$$
$$\frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2) - N_2 - 13 \cdot (N_2 - N_1)} - F_{14} = 0.00000$$
$$\frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2) - N_2 - 14 \cdot (N_2 - N_1)} - F_{15} = 0.00000$$



$N_1 = 6.00000$

$N_2 = 10.00000$

$N_1 \cdot N_2 = 60.00000$

$N_2 - N_1 = 4.00000$

$F_1 = 1.07143$

$F_2 = 1.15385$

$F_3 = 1.25000$

$F_4 = 1.36364$

$F_5 = 1.50000$

$F_6 = 1.66667$

$F_7 = 1.87500$

$F_8 = 2.14286$

$F_9 = 2.50000$

$F_{10} = 3.00000$

$F_{11} = 3.75000$

$F_{12} = 5.00000$

$$\frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2)-(N_2-N_1)} - F_1 = 0.00000$$

$$\frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2)-2\cdot(N_2-N_1)} - F_2 = 0.00000$$

$$\frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2)-3\cdot(N_2-N_1)} - F_3 = 0.00000$$

$$\frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2)-4\cdot(N_2-N_1)} - F_4 = 0.00000$$

$$\frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2)-5\cdot(N_2-N_1)} - F_5 = 0.00000$$

$$\frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2)-6\cdot(N_2-N_1)} - F_6 = 0.00000$$

$$\frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2)-7\cdot(N_2-N_1)} - F_7 = 0.00000$$

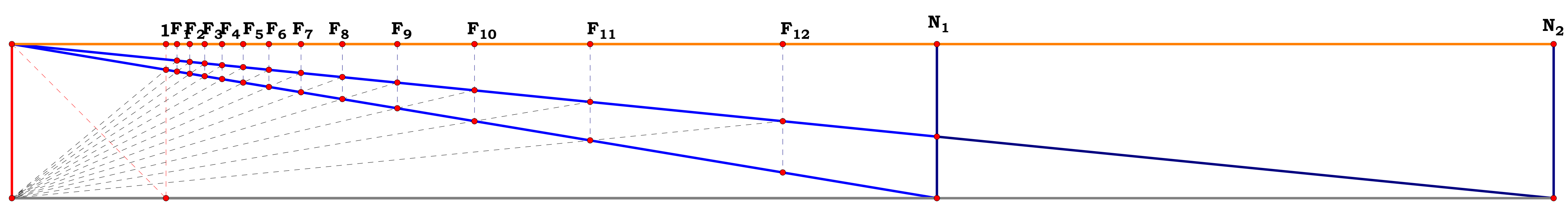
$$\frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2)-8\cdot(N_2-N_1)} - F_8 = 0.00000$$

$$\frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2)-9\cdot(N_2-N_1)} - F_9 = 0.00000$$

$$\frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2)-10\cdot(N_2-N_1)} - F_{10} = 0.00000$$

$$\frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2)-11\cdot(N_2-N_1)} - F_{11} = 0.00000$$

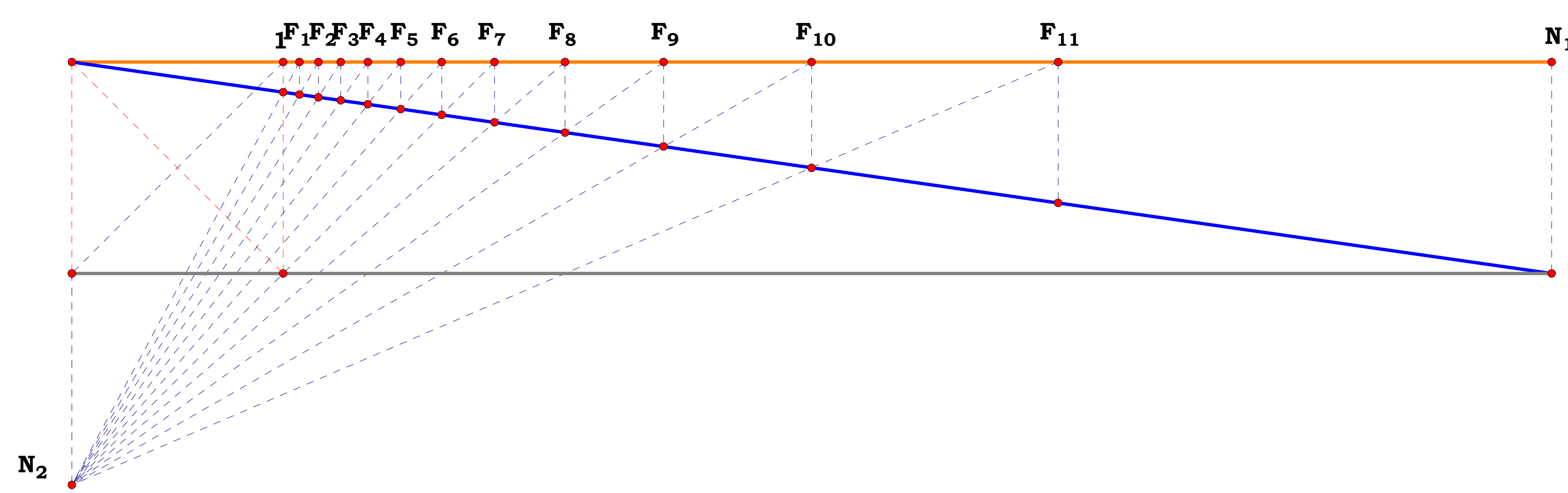
$$\frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2)-12\cdot(N_2-N_1)} - F_{12} = 0.00000$$



$N_1 = 7.00000$
$N_2 = 2.00000$
$N_1 \cdot N_2 = 14.00000$

$F_1 = 1.07692$
$F_2 = 1.16667$
$F_3 = 1.27273$
$F_4 = 1.40000$
$F_5 = 1.55556$
$F_6 = 1.75000$
$F_7 = 2.00000$
$F_8 = 2.33333$
$F_9 = 2.80000$
$F_{10} = 3.50000$
$F_{11} = 4.66667$

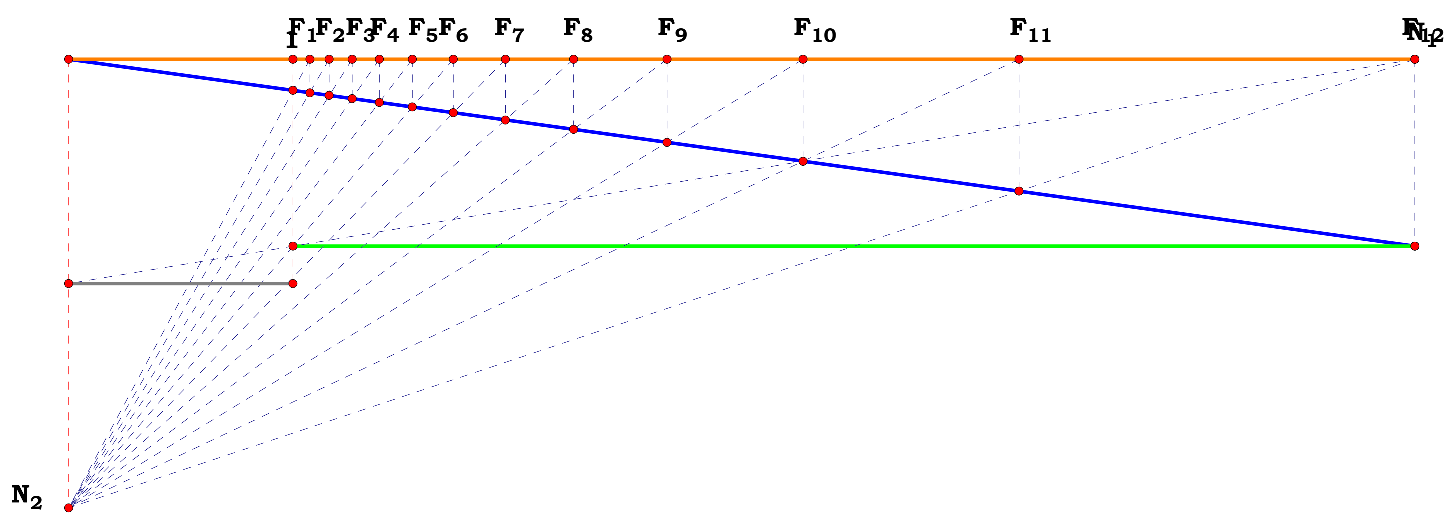
$$\frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2)-1} - F_1 = 0.00000$$
$$\frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2)-2} - F_2 = 0.00000$$
$$\frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2)-3} - F_3 = 0.00000$$
$$\frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2)-4} - F_4 = 0.00000$$
$$\frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2)-5} - F_5 = 0.00000$$
$$\frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2)-6} - F_6 = 0.00000$$
$$\frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2)-7} - F_7 = 0.00000$$
$$\frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2)-8} - F_8 = 0.00000$$
$$\frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2)-9} - F_9 = 0.00000$$
$$\frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2)-10} - F_{10} = 0.00000$$
$$\frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2)-11} - F_{11} = 0.00000$$



$F_1 = 1.07463$
$F_2 = 1.16129$
$F_3 = 1.26316$
$F_4 = 1.38462$
$F_5 = 1.53191$
$F_6 = 1.71429$
$F_7 = 1.94595$
$F_8 = 2.25000$
$F_9 = 2.66667$
$F_{10} = 3.27273$
$F_{11} = 4.23529$
$F_{12} = 6.00000$

$N_1 = 6.00000$
$N_2 = 2.00000$
$N_1^2 \cdot N_2 = 72.00000$
$N_1 - 1 = 5.00000$

$$\frac{(N_1^2 \cdot N_2)}{(N_1^2 \cdot N_2)-(N_1-1)} - F_1 = 0.00000$$
$$\frac{(N_1^2 \cdot N_2)}{(N_1^2 \cdot N_2)-2\cdot(N_1-1)} - F_2 = 0.00000$$
$$\frac{(N_1^2 \cdot N_2)}{(N_1^2 \cdot N_2)-3\cdot(N_1-1)} - F_3 = 0.00000$$
$$\frac{(N_1^2 \cdot N_2)}{(N_1^2 \cdot N_2)-4\cdot(N_1-1)} - F_4 = 0.00000$$
$$\frac{(N_1^2 \cdot N_2)}{(N_1^2 \cdot N_2)-5\cdot(N_1-1)} - F_5 = 0.00000$$
$$\frac{(N_1^2 \cdot N_2)}{(N_1^2 \cdot N_2)-6\cdot(N_1-1)} - F_6 = 0.00000$$
$$\frac{(N_1^2 \cdot N_2)}{(N_1^2 \cdot N_2)-7\cdot(N_1-1)} - F_7 = 0.00000$$
$$\frac{(N_1^2 \cdot N_2)}{(N_1^2 \cdot N_2)-8\cdot(N_1-1)} - F_8 = 0.00000$$
$$\frac{(N_1^2 \cdot N_2)}{(N_1^2 \cdot N_2)-9\cdot(N_1-1)} - F_9 = 0.00000$$
$$\frac{(N_1^2 \cdot N_2)}{(N_1^2 \cdot N_2)-10\cdot(N_1-1)} - F_{10} = 0.00000$$
$$\frac{(N_1^2 \cdot N_2)}{(N_1^2 \cdot N_2)-11\cdot(N_1-1)} - F_{11} = 0.00000$$
$$\frac{(N_1^2 \cdot N_2)}{(N_1^2 \cdot N_2)-12\cdot(N_1-1)} - F_{12} = 0.00000$$



X1 X2 X3 X4 X5 X6 X7 X8 X9 X10 X11 X12 X13 X14 X15 X16 X17 X18 X19 X20

Y1 Y2 Y3 Y4 Y5 Y6 Y7 Y8 Y9 Y10 Y11 Y12 Y13 Y14 Y15 Y16 Y17 Y18 Y19 Y20

Circle

Show Lines

Points

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Hide Point N[1]

Hide Point N[2]

Show Base Line Points (20)

Hide Point N[3]

Hide Action Buttons

$N_1 = 10.00000$

$N_2 = 4.00000$

$N_3 = 3.00000$

$N_3\text{-}1 = 2.00000$

$N_1\cdot(N_3\text{-}1)+N_1 = 30.00000$

$N_2\cdot(N_3\text{-}1)+N_2 = 12.00000$

$F_1 = 2.50000$

$F_2 = 2.72727$

$F_3 = 3.00000$

$F_4 = 3.33333$

$F_5 = 3.75000$

$F_6 = 4.28571$

$F_7 = 5.00000$

$F_8 = 6.00000$

$F_9 = 7.50000$

$F_{10} = 10.00000$

$\frac{(N_1\cdot(N_3\text{-}1)+N_1)}{(N_2\cdot(N_3\text{-}1)+N_2)}\text{-}F_1 = 0.00000$

$\frac{(N_1\cdot(N_3\text{-}1)+N_1)}{(N_2\cdot(N_3\text{-}1)+N_2)\text{-}1}\text{-}F_2 = 0.00000$

$\frac{(N_1\cdot(N_3\text{-}1)+N_1)}{(N_2\cdot(N_3\text{-}1)+N_2)\text{-}2}\text{-}F_3 = 0.00000$

$\frac{(N_1\cdot(N_3\text{-}1)+N_1)}{(N_2\cdot(N_3\text{-}1)+N_2)\text{-}3}\text{-}F_4 = 0.00000$

$\frac{(N_1\cdot(N_3\text{-}1)+N_1)}{(N_2\cdot(N_3\text{-}1)+N_2)\text{-}4}\text{-}F_5 = 0.00000$

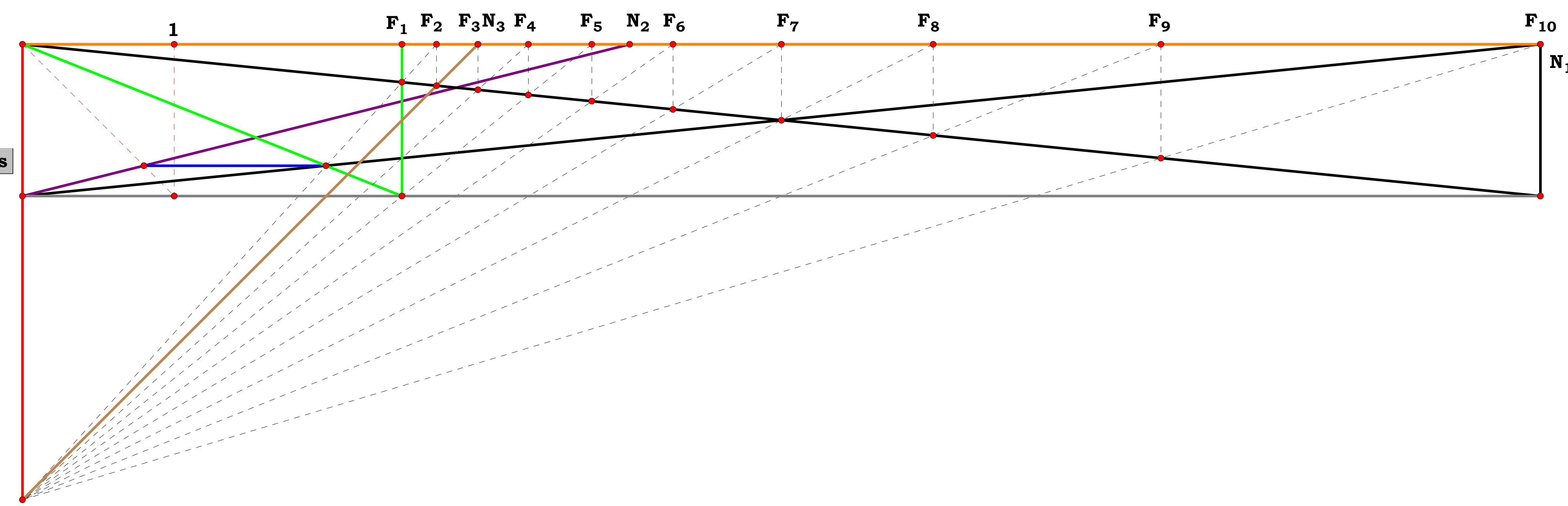
$\frac{(N_1\cdot(N_3\text{-}1)+N_1)}{(N_2\cdot(N_3\text{-}1)+N_2)\text{-}5}\text{-}F_6 = 0.00000$

$\frac{(N_1\cdot(N_3\text{-}1)+N_1)}{(N_2\cdot(N_3\text{-}1)+N_2)\text{-}6}\text{-}F_7 = 0.00000$

$\frac{(N_1\cdot(N_3\text{-}1)+N_1)}{(N_2\cdot(N_3\text{-}1)+N_2)\text{-}7}\text{-}F_8 = 0.00000$

$\frac{(N_1\cdot(N_3\text{-}1)+N_1)}{(N_2\cdot(N_3\text{-}1)+N_2)\text{-}8}\text{-}F_9 = 0.00000$

$\frac{(N_1\cdot(N_3\text{-}1)+N_1)}{(N_2\cdot(N_3\text{-}1)+N_2)\text{-}9}\text{-}F_{10} = 0.00000$

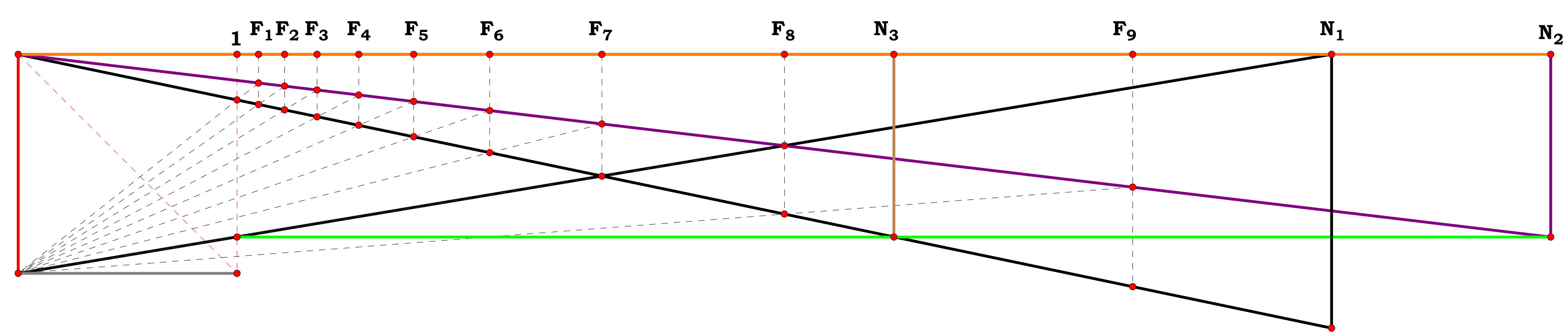


$F_1 = 1.09804$
$F_2 = 1.21739$
$F_3 = 1.36585$
$F_4 = 1.55556$
$F_5 = 1.80645$
$F_6 = 2.15385$
$F_7 = 2.66667$
$F_8 = 3.50000$
$F_9 = 5.09091$

$$\frac{(N_1 \cdot N_2 \cdot N_3)}{(N_1 \cdot N_2 \cdot N_3)-((N_1-1)\cdot(N_2-N_3))} - F_1 = 0.00000$$
$$\frac{(N_1 \cdot N_2 \cdot N_3)}{(N_1 \cdot N_2 \cdot N_3)-((N_1-1)\cdot(N_2-N_3))\cdot 2} - F_2 = 0.00000$$
$$\frac{(N_1 \cdot N_2 \cdot N_3)}{(N_1 \cdot N_2 \cdot N_3)-((N_1-1)\cdot(N_2-N_3))\cdot 3} - F_3 = 0.00000$$
$$\frac{(N_1 \cdot N_2 \cdot N_3)}{(N_1 \cdot N_2 \cdot N_3)-((N_1-1)\cdot(N_2-N_3))\cdot 4} - F_4 = 0.00000$$
$$\frac{(N_1 \cdot N_2 \cdot N_3)}{(N_1 \cdot N_2 \cdot N_3)-((N_1-1)\cdot(N_2-N_3))\cdot 5} - F_5 = 0.00000$$
$$\frac{(N_1 \cdot N_2 \cdot N_3)}{(N_1 \cdot N_2 \cdot N_3)-((N_1-1)\cdot(N_2-N_3))\cdot 6} - F_6 = 0.00000$$
$$\frac{(N_1 \cdot N_2 \cdot N_3)}{(N_1 \cdot N_2 \cdot N_3)-((N_1-1)\cdot(N_2-N_3))\cdot 7} - F_7 = 0.00000$$
$$\frac{(N_1 \cdot N_2 \cdot N_3)}{(N_1 \cdot N_2 \cdot N_3)-((N_1-1)\cdot(N_2-N_3))\cdot 8} - F_8 = 0.00000$$
$$\frac{(N_1 \cdot N_2 \cdot N_3)}{(N_1 \cdot N_2 \cdot N_3)-((N_1-1)\cdot(N_2-N_3))\cdot 9} - F_9 = 0.00000$$

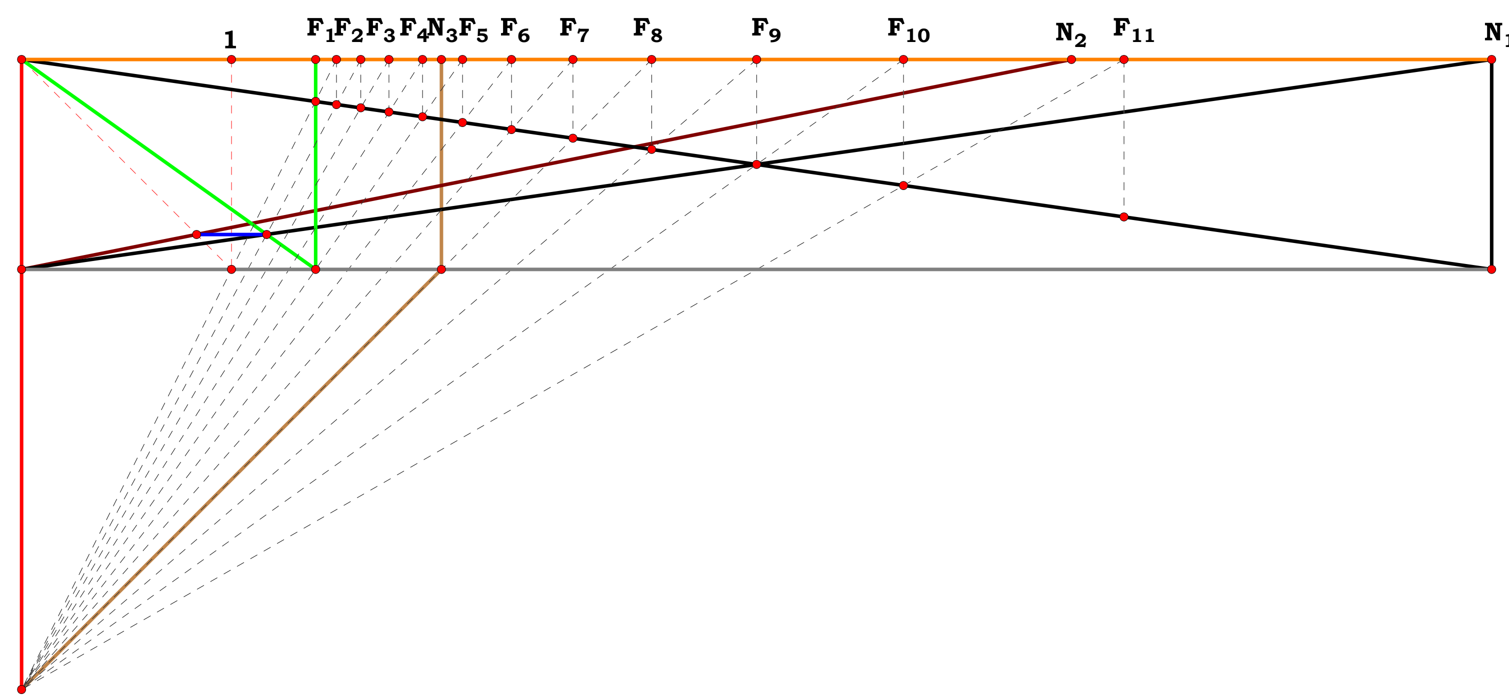
$N_1 = 6.00000$
$N_2 = 7.00000$
$N_3 = 4.00000$

$N_1 \cdot N_2 \cdot N_3 = 168.00000$
$N_1-1 = 5.00000$
$N_2-N_3 = 3.00000$
$(N_1-1)\cdot(N_2-N_3) = 15.00000$



$F_1 = 1.50000$
$F_2 = 1.61538$
$F_3 = 1.75000$
$F_4 = 1.90909$
$F_5 = 2.10000$
$F_6 = 2.33333$
$F_7 = 2.62500$
$F_8 = 3.00000$
$F_9 = 3.50000$
$F_{10} = 4.20000$
$F_{11} = 5.25000$

$$\frac{(N_1\cdot(N_3+1))}{(N_2+N_2\cdot N_3)-1}-F_1 = 0.00000$$
$$\frac{(N_1\cdot(N_3+1))}{(N_2+N_2\cdot N_3)-2}-F_2 = 0.00000$$
$$\frac{(N_1\cdot(N_3+1))}{(N_2+N_2\cdot N_3)-3}-F_3 = 0.00000$$
$$\frac{(N_1\cdot(N_3+1))}{(N_2+N_2\cdot N_3)-4}-F_4 = 0.00000$$
$$\frac{(N_1\cdot(N_3+1))}{(N_2+N_2\cdot N_3)-5}-F_5 = 0.00000$$
$$\frac{(N_1\cdot(N_3+1))}{(N_2+N_2\cdot N_3)-6}-F_6 = 0.00000$$
$$\frac{(N_1\cdot(N_3+1))}{(N_2+N_2\cdot N_3)-7}-F_7 = 0.00000$$
$$\frac{(N_1\cdot(N_3+1))}{(N_2+N_2\cdot N_3)-8}-F_8 = 0.00000$$
$$\frac{(N_1\cdot(N_3+1))}{(N_2+N_2\cdot N_3)-9}-F_9 = 0.00000$$



$N_1 = 7.00000$
$N_2 = 5.00000$
$N_3 = 2.00000$

$N_3+1 = 3.00000$
$N_1\cdot(N_3+1) = 21.00000$
$N_2+N_2\cdot N_3 = 15.00000$

$F_1 = 1.12676$
$F_2 = 1.29032$
$F_3 = 1.50943$
$F_4 = 1.81818$
$F_5 = 2.28571$
$F_6 = 3.07692$
$F_7 = 4.70588$

$$\frac{(N_1 \cdot N_2 \cdot N_3)}{(N_1 \cdot N_2 \cdot N_3)-(N_1-1)}-F_1 = 0.00000$$

$$\frac{(N_1 \cdot N_2 \cdot N_3)}{(N_1 \cdot N_2 \cdot N_3)-2 \cdot (N_1-1)}-F_2 = 0.00000$$

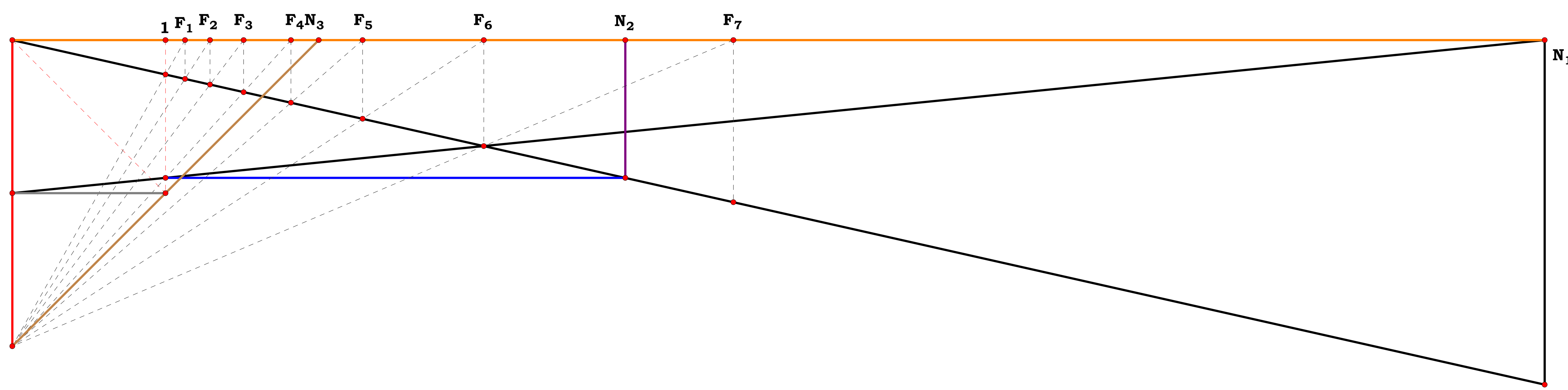
$$\frac{(N_1 \cdot N_2 \cdot N_3)}{(N_1 \cdot N_2 \cdot N_3)-3 \cdot (N_1-1)}-F_3 = 0.00000$$

$$\frac{(N_1 \cdot N_2 \cdot N_3)}{(N_1 \cdot N_2 \cdot N_3)-4 \cdot (N_1-1)}-F_4 = 0.00000$$

$$\frac{(N_1 \cdot N_2 \cdot N_3)}{(N_1 \cdot N_2 \cdot N_3)-5 \cdot (N_1-1)}-F_5 = 0.00000$$

$$\frac{(N_1 \cdot N_2 \cdot N_3)}{(N_1 \cdot N_2 \cdot N_3)-6 \cdot (N_1-1)}-F_6 = 0.00000$$

$$\frac{(N_1 \cdot N_2 \cdot N_3)}{(N_1 \cdot N_2 \cdot N_3)-7 \cdot (N_1-1)}-F_7 = 0.00000$$



$N_1 = 10.00000$
$N_2 = 4.00000$
$N_3 = 2.00000$
$N_1 \cdot N_2 \cdot N_3 = 80.00000$
$N_1-1 = 9.00000$

X1 X2 X3 X4 X5 X6 X7 X8 X9 X10 X11 X12 X13 X14 X15 X16 X17 X18 X19 X20

Y1 Y2 Y3 Y4 Y5 Y6 Y7 Y8 Y9 Y10 Y11 Y12 Y13 Y14 Y15 Y16 Y17 Y18 Y19 Y20

Circle

Show Lines

Points

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Hide Point N[1]

Hide Point N[2]

Show Base Line Points (20)

$N_1 = 5.00000$

$N_2 = 8.00000$

$N_3 = 4.00000$

$N_1 \cdot N_2 \cdot N_3 = 160.00000$

$F_1 = 0.95238$

$F_2 = 1.08108$

$F_3 = 1.25000$

$F_4 = 1.48148$

$F_5 = 1.81818$

$F_6 = 2.35294$

$F_7 = 3.33333$

$$\frac{(N_1 \cdot N_2 \cdot N_3)}{91} = 1.75824$$
$$\frac{(N_1 \cdot N_2 \cdot N_3)}{85} = 1.88235$$
$$\frac{(N_1 \cdot N_2 \cdot N_3)}{79} = 2.02532$$
$$\frac{(N_1 \cdot N_2 \cdot N_3)}{73} = 2.19178$$
$$\frac{(N_1 \cdot N_2 \cdot N_3)}{67} = 2.38806$$

$3 \cdot 7 \cdot 5 = 105.00000$

$(3 \cdot 7 \cdot 5)-7-7 = 91.00000$

$(3 \cdot 7 \cdot 5)-7-7-3-3 = 85.00000$

$(3 \cdot 7 \cdot 5)-7-7-3-3-3-3 = 79.00000$

$(3 \cdot 7 \cdot 5)-7-7-3-3-3-3-3-3 = 73.00000$

$(3 \cdot 7 \cdot 5)-7-7-3-3-3-3-3-3-3-3 = 67.00000$

$3 \cdot 7 \cdot 4 = 84.00000$

$$\frac{(N_1 \cdot N_2 \cdot N_3)}{77} = 2.07792$$
$$\frac{(N_1 \cdot N_2 \cdot N_3)}{68} = 2.35294$$
$$\frac{(N_1 \cdot N_2 \cdot N_3)}{59} = 2.71186$$
$$\frac{(N_1 \cdot N_2 \cdot N_3)}{50} = 3.20000$$
$$\frac{(N_1 \cdot N_2 \cdot N_3)}{32} = 5.00000$$

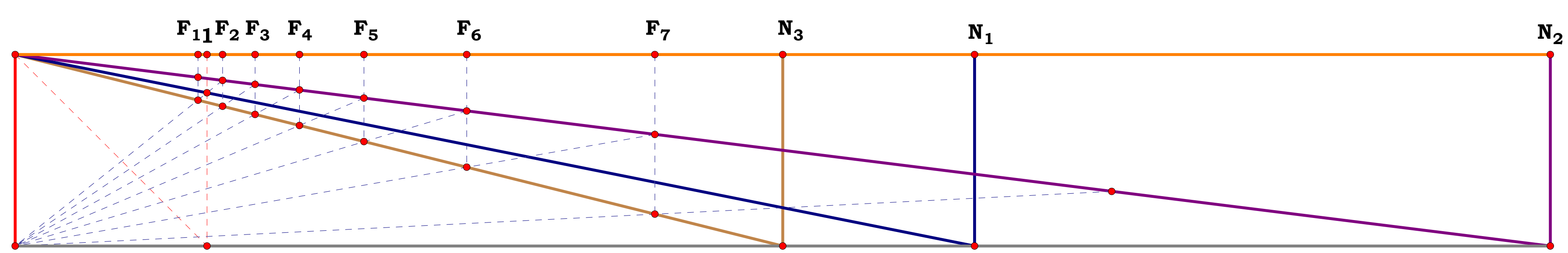
$(3 \cdot 7 \cdot 4)-7 = 77.00000$

$(3 \cdot 7 \cdot 4)-2 \cdot 7-2 = 68.00000$

$(3 \cdot 7 \cdot 4)-3 \cdot 7-2-2 = 59.00000$

$(3 \cdot 7 \cdot 4)-4 \cdot 7-2-2-2 = 50.00000$

$(3 \cdot 7 \cdot 4)-5 \cdot 7-7-2-2-2-2-2 = 32.00000$



X1 X2 X3 X4 X5 X6 X7 X8 X9 X10 X11 X12 X13 X14 X15 X16 X17 X18 X19 X20

Y1 Y2 Y3 Y4 Y5 Y6 Y7 Y8 Y9 Y10 Y11 Y12 Y13 Y14 Y15 Y16 Y17 Y18 Y19 Y20

Circle

Show Lines

Points

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

$3 \cdot 5 \cdot 7 = 105.00000$

$F_1 = 1.50000$

$F_2 = 1.64062$

$F_3 = 1.81034$

$F_4 = 2.01923$

$F_5 = 2.28261$

$F_6 = 2.62500$

$$\frac{105}{70} = 1.50000$$

$$\frac{105}{64} = 1.64063$$

$$\frac{105}{58} = 1.81034$$

Hide Point N[1]

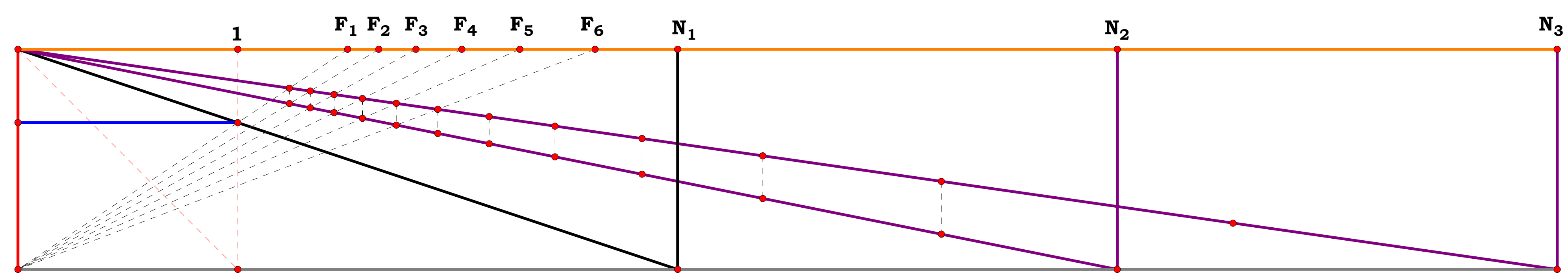
Hide Point N[2]

Show Base Line Points (20)

$N_1 = 3.00000$

$N_2 = 5.00000$

$N_3 = 7.00000$



X1
X2
X3
X4
X5
X6
X7
X8
X9
X10
X11
X12
X13
X14
X15
X16
X17
X18
X19
X20

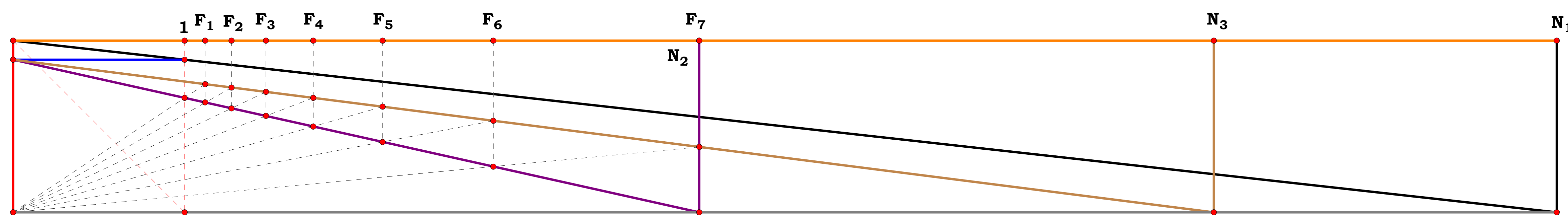
Y1
Y2
Y3
Y4
Y5
Y6
Y7
Y8
Y9
Y10
Y11
Y12
Y13
Y14
Y15
Y16
Y17
Y18
Y19
Y20

Circle
Show Lines
Points
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

Hide Point N[1]
Hide Point N[2]
Show Base Line Points (20)

$F_1 = 1.12000$
$F_2 = 1.27273$
$F_3 = 1.47368$
$F_4 = 1.75000$
$F_5 = 2.15385$
$F_6 = 2.80000$
$F_7 = 4.00000$

$N_1 = 9.00000$
$N_2 = 4.00000$
$N_3 = 7.00000$



X1 X2 X3 X4 X5 X6 X7 X8 X9 X10 X11 X12 X13 X14 X15 X16 X17 X18 X19 X20

Y1 Y2 Y3 Y4 Y5 Y6 Y7 Y8 Y9 Y10 Y11 Y12 Y13 Y14 Y15 Y16 Y17 Y18 Y19 Y20

Circle

Show Lines

Points

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Hide Point N[1]

Hide Point N[2]

Show Base Line Points (20)

$N_1 = 10.00000$

$N_2 = 5.00000$

$N_3 = 6.00000$

$N_1 \cdot N_3 = 60.00000$

$F_1 = 1.09091$

$F_2 = 1.20000$

$F_3 = 1.33333$

$F_4 = 1.50000$

$F_5 = 1.71429$

$F_6 = 2.00000$

$F_7 = 2.40000$

$F_8 = 3.00000$

$F_9 = 4.00000$

$F_{10} = 6.00000$

$$\frac{(N_1 \cdot N_3)}{(N_1 \cdot N_3) - N_2} - F_1 = 0.00000$$

$$\frac{(N_1 \cdot N_3)}{(N_1 \cdot N_3) - N_2 \cdot 2} - F_2 = 0.00000$$

$$\frac{(N_1 \cdot N_3)}{(N_1 \cdot N_3) - N_2 \cdot 3} - F_3 = 0.00000$$

$$\frac{(N_1 \cdot N_3)}{(N_1 \cdot N_3) - N_2 \cdot 4} - F_4 = 0.00000$$

$$\frac{(N_1 \cdot N_3)}{(N_1 \cdot N_3) - N_2 \cdot 5} - F_5 = 0.00000$$

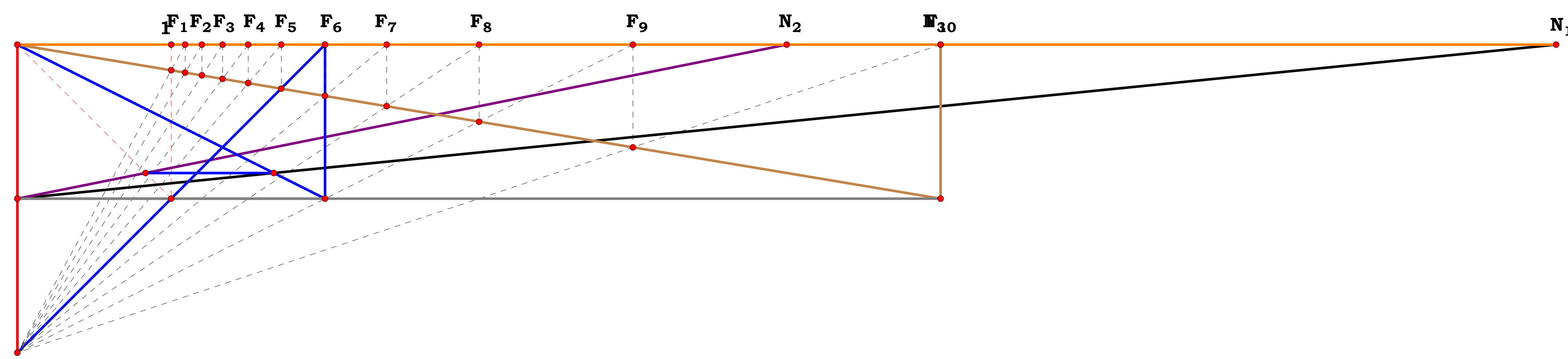
$$\frac{(N_1 \cdot N_3)}{(N_1 \cdot N_3) - N_2 \cdot 6} - F_6 = 0.00000$$

$$\frac{(N_1 \cdot N_3)}{(N_1 \cdot N_3) - N_2 \cdot 7} - F_7 = 0.00000$$

$$\frac{(N_1 \cdot N_3)}{(N_1 \cdot N_3) - N_2 \cdot 8} - F_8 = 0.00000$$

$$\frac{(N_1 \cdot N_3)}{(N_1 \cdot N_3) - N_2 \cdot 9} - F_9 = 0.00000$$

$$\frac{(N_1 \cdot N_3)}{(N_1 \cdot N_3) - N_2 \cdot 10} - F_{10} = 0.00000$$



$F_1 = 1.05660$

$F_2 = 1.12000$

$F_3 = 1.19149$

$F_4 = 1.27273$

$F_5 = 1.36585$

$F_6 = 1.47368$

$F_7 = 1.60000$

$F_8 = 1.75000$

$F_9 = 1.93103$

$F_{10} = 2.15385$

$F_{11} = 2.43478$

$F_{12} = 2.80000$

$F_{13} = 3.29412$

$F_{14} = 4.00000$

$F_{15} = 5.09091$

$F_{16} = 7.00000$

$$\frac{(N_1 \cdot N_2 \cdot N_3)}{(N_1 \cdot N_2 \cdot N_3)-(N_2-1)}-F_1 = 0.00000$$

$$\frac{(N_1 \cdot N_2 \cdot N_3)}{(N_1 \cdot N_2 \cdot N_3)-(N_2-1) \cdot 2}-F_2 = 0.00000$$

$$\frac{(N_1 \cdot N_2 \cdot N_3)}{(N_1 \cdot N_2 \cdot N_3)-(N_2-1) \cdot 3}-F_3 = 0.00000$$

$$\frac{(N_1 \cdot N_2 \cdot N_3)}{(N_1 \cdot N_2 \cdot N_3)-(N_2-1) \cdot 4}-F_4 = 0.00000$$

$$\frac{(N_1 \cdot N_2 \cdot N_3)}{(N_1 \cdot N_2 \cdot N_3)-(N_2-1) \cdot 5}-F_5 = 0.00000$$

$$\frac{(N_1 \cdot N_2 \cdot N_3)}{(N_1 \cdot N_2 \cdot N_3)-(N_2-1) \cdot 6}-F_6 = 0.00000$$

$$\frac{(N_1 \cdot N_2 \cdot N_3)}{(N_1 \cdot N_2 \cdot N_3)-(N_2-1) \cdot 7}-F_7 = 0.00000$$

$$\frac{(N_1 \cdot N_2 \cdot N_3)}{(N_1 \cdot N_2 \cdot N_3)-(N_2-1) \cdot 8}-F_8 = 0.00000$$

$$\frac{(N_1 \cdot N_2 \cdot N_3)}{(N_1 \cdot N_2 \cdot N_3)-(N_2-1) \cdot 9}-F_9 = 0.00000$$

$$\frac{(N_1 \cdot N_2 \cdot N_3)}{(N_1 \cdot N_2 \cdot N_3)-(N_2-1) \cdot 10}-F_{10} = 0.00000$$

$$\frac{(N_1 \cdot N_2 \cdot N_3)}{(N_1 \cdot N_2 \cdot N_3)-(N_2-1) \cdot 11}-F_{11} = 0.00000$$

$$\frac{(N_1 \cdot N_2 \cdot N_3)}{(N_1 \cdot N_2 \cdot N_3)-(N_2-1) \cdot 12}-F_{12} = 0.00000$$

$$\frac{(N_1 \cdot N_2 \cdot N_3)}{(N_1 \cdot N_2 \cdot N_3)-(N_2-1) \cdot 13}-F_{13} = 0.00000$$

$$\frac{(N_1 \cdot N_2 \cdot N_3)}{(N_1 \cdot N_2 \cdot N_3)-(N_2-1) \cdot 14}-F_{14} = 0.00000$$

$$\frac{(N_1 \cdot N_2 \cdot N_3)}{(N_1 \cdot N_2 \cdot N_3)-(N_2-1) \cdot 15}-F_{15} = 0.00000$$

$$\frac{(N_1 \cdot N_2 \cdot N_3)}{(N_1 \cdot N_2 \cdot N_3)-(N_2-1) \cdot 16}-F_{16} = 0.00000$$

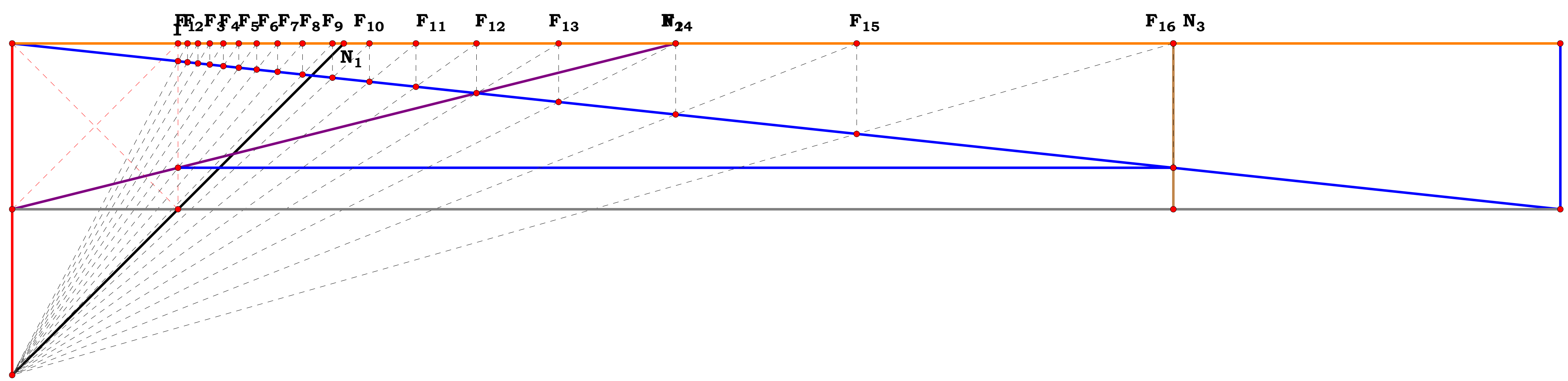
$N_1 = 2.00000$

$N_2 = 4.00000$

$N_3 = 7.00000$

$N_1 \cdot N_2 \cdot N_3 = 56.00000$

$N_2-1 = 3.00000$

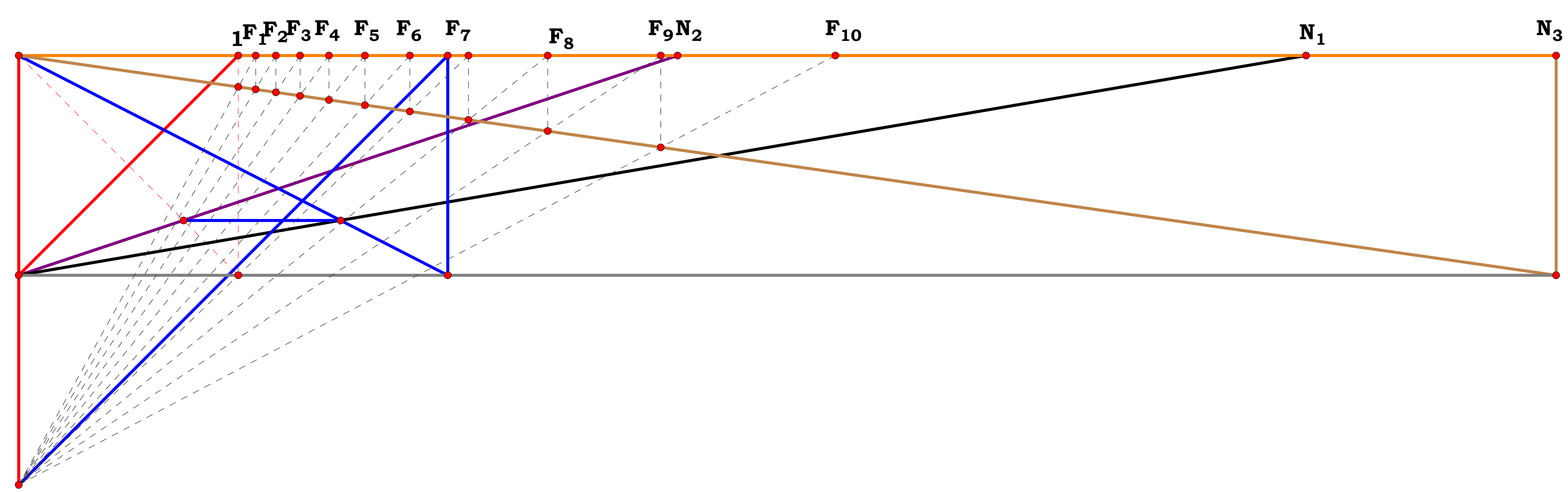


$F_1 = 1.07888$
$F_2 = 1.17126$
$F_3 = 1.28095$
$F_4 = 1.41330$
$F_5 = 1.57616$
$F_6 = 1.78144$
$F_7 = 2.04820$
$F_8 = 2.40892$
$F_9 = 2.92385$
$F_{10} = 3.71879$

$$\frac{(N_1 \cdot N_3)}{(N_1 \cdot N_3) - N_2} - F_1 = 0.00000$$
$$\frac{(N_1 \cdot N_3)}{(N_1 \cdot N_3) - 2 \cdot N_2} - F_2 = 0.00000$$
$$\frac{(N_1 \cdot N_3)}{(N_1 \cdot N_3) - 3 \cdot N_2} - F_3 = 0.00000$$
$$\frac{(N_1 \cdot N_3)}{(N_1 \cdot N_3) - 4 \cdot N_2} - F_4 = 0.00000$$
$$\frac{(N_1 \cdot N_3)}{(N_1 \cdot N_3) - 5 \cdot N_2} - F_5 = 0.00000$$

$$\frac{(N_1 \cdot N_3)}{(N_1 \cdot N_3) - 6 \cdot N_2} - F_6 = 0.00000$$
$$\frac{(N_1 \cdot N_3)}{(N_1 \cdot N_3) - 7 \cdot N_2} - F_8 = -0.36072$$
$$\frac{(N_1 \cdot N_3)}{(N_1 \cdot N_3) - 8 \cdot N_2} - F_7 = 0.36072$$
$$\frac{(N_1 \cdot N_3)}{(N_1 \cdot N_3) - 9 \cdot N_2} - F_9 = 0.00000$$
$$\frac{(N_1 \cdot N_3)}{(N_1 \cdot N_3) - 10 \cdot N_2} - F_{10} = 0.00000$$

$N_1 = 5.86205$
$N_2 = 3.00000$
$N_3 = 7.00000$
$N_1 \cdot N_3 = 41.03433$



$F_1 = 1.09589$
$F_2 = 1.21212$
$F_3 = 1.35593$
$F_4 = 1.53846$
$F_5 = 1.77778$
$F_6 = 2.10526$
$F_7 = 2.58065$
$F_8 = 3.33333$
$F_9 = 4.70588$

$$\frac{(N_1 \cdot N_3 \cdot N_4)}{(N_1 \cdot N_3 \cdot N_4)+(N_2 - N_2 \cdot N_3)} - F_1 = 0.00000$$

$$\frac{(N_1 \cdot N_3 \cdot N_4)}{(N_1 \cdot N_3 \cdot N_4)+2 \cdot (N_2 - N_2 \cdot N_3)} - F_2 = 0.00000$$

$$\frac{(N_1 \cdot N_3 \cdot N_4)}{(N_1 \cdot N_3 \cdot N_4)+3 \cdot (N_2 - N_2 \cdot N_3)} - F_3 = 0.00000$$

$$\frac{(N_1 \cdot N_3 \cdot N_4)}{(N_1 \cdot N_3 \cdot N_4)+4 \cdot (N_2 - N_2 \cdot N_3)} - F_4 = 0.00000$$

$$\frac{(N_1 \cdot N_3 \cdot N_4)}{(N_1 \cdot N_3 \cdot N_4)+5 \cdot (N_2 - N_2 \cdot N_3)} - F_5 = 0.00000$$

$$\frac{(N_1 \cdot N_3 \cdot N_4)}{(N_1 \cdot N_3 \cdot N_4)+6 \cdot (N_2 - N_2 \cdot N_3)} - F_6 = 0.00000$$

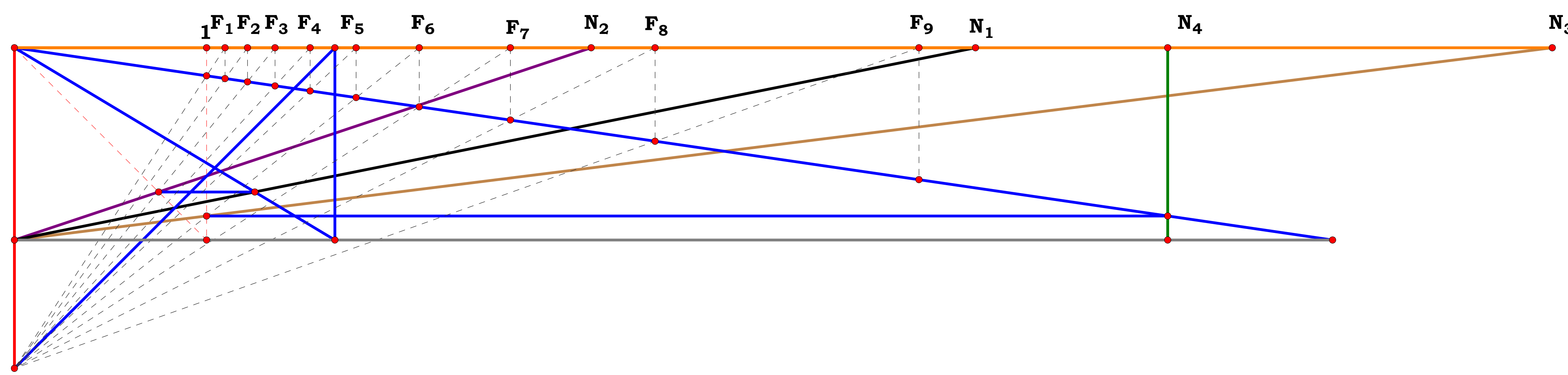
$$\frac{(N_1 \cdot N_3 \cdot N_4)}{(N_1 \cdot N_3 \cdot N_4)+7 \cdot (N_2 - N_2 \cdot N_3)} - F_7 = 0.00000$$

$$\frac{(N_1 \cdot N_3 \cdot N_4)}{(N_1 \cdot N_3 \cdot N_4)+8 \cdot (N_2 - N_2 \cdot N_3)} - F_8 = 0.00000$$

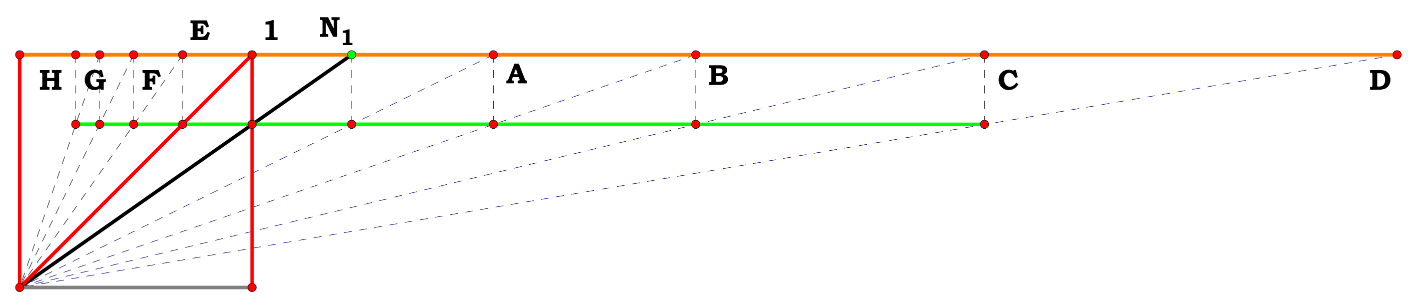
$$\frac{(N_1 \cdot N_3 \cdot N_4)}{(N_1 \cdot N_3 \cdot N_4)+9 \cdot (N_2 - N_2 \cdot N_3)} - F_9 = 0.00000$$

$N_1 = 5.00000$
$N_2 = 3.00000$
$N_3 = 8.00000$
$N_4 = 6.00000$

$N_1 \cdot N_3 \cdot N_4 = 240.00000$
$N_2 - N_2 \cdot N_3 = -21.00000$



$N_1 = 1.42736$



A = 2.03735

B = 2.90803

C = 4.15079

D = 5.92467

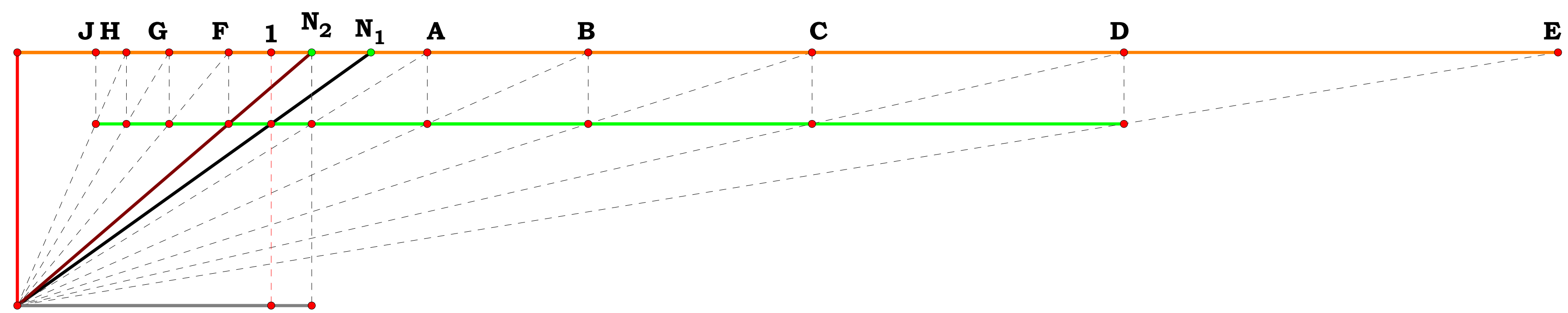
E = 0.70060

F = 0.49083

G = 0.34388

H = 0.24092

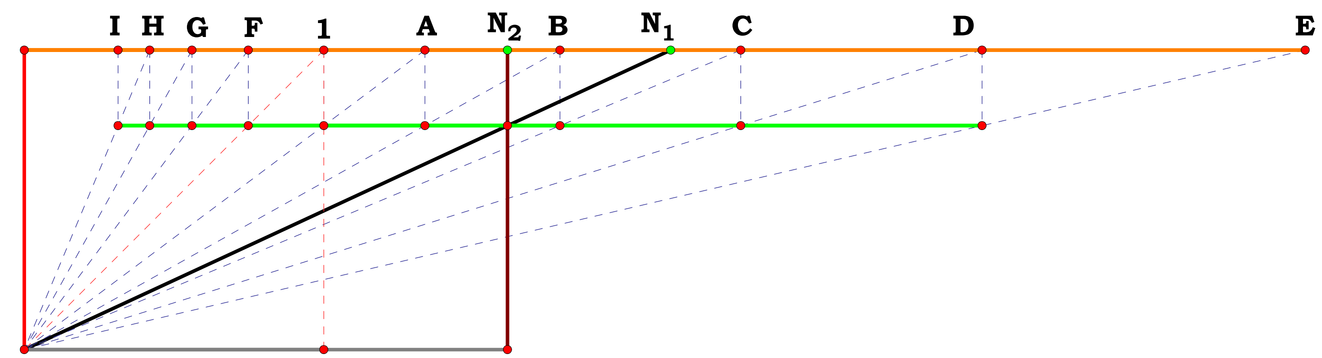
$N_1^2 - A = 0.00000$	$N_1^{-1} - E = 0.00000$
$N_1^3 - B = 0.00000$	$N_1^{-2} - F = 0.00000$
$N_1^4 - C = 0.00000$	$N_1^{-3} - G = 0.00000$
$N_1^5 - D = 0.00000$	$N_1^{-4} - H = 0.00000$



N_1 = 1.39234
N_2 = 1.15968
A = 1.61466
B = 2.24815
C = 3.13018
D = 4.35827
E = 6.06818
F = 0.83290
G = 0.59820
H = 0.42964
J = 0.30857

$N_2 \cdot N_1^{1}$-A = 0.00000
$N_2 \cdot N_1^{2}$-B = 0.00000
$N_2 \cdot N_1^{3}$-C = 0.00000
$N_2 \cdot N_1^{4}$-D = 0.00000
$N_2 \cdot N_1^{5}$-E = 0.00000

$N_2 \cdot N_1^{-1}$-F = 0.00000
$N_2 \cdot N_1^{-2}$-G = 0.00000
$N_2 \cdot N_1^{-3}$-H = 0.00000
$N_2 \cdot N_1^{-4}$-J = 0.00000



$N_1 = 2.15726$

$N_2 = 1.61326$

$\frac{N_1}{N_2} = 1.33720$

A = 1.33720

B = 1.78811

C = 2.39107

D = 3.19734

E = 4.27549

F = 0.74783

G = 0.55925

H = 0.41822

I = 0.31276

$\frac{N_1}{N_2}^{1} - A = 0.00000$

$\frac{N_1}{N_2}^{2} - B = 0.00000$

$\frac{N_1}{N_2}^{3} - C = 0.00000$

$\frac{N_1}{N_2}^{4} - D = 0.00000$

$\frac{N_1}{N_2}^{5} - E = 0.00000$

$\frac{N_1}{N_2}^{-1} - F = 0.00000$

$\frac{N_1}{N_2}^{-2} - G = 0.00000$

$\frac{N_1}{N_2}^{-3} - H = 0.00000$

$\frac{N_1}{N_2}^{-4} - I = 0.00000$

Plate 3

$\frac{N_1}{N_2} - A = 0.00000$

$\frac{N_1^2}{N_2^2} - B = 0.00000$

$\frac{N_1^3}{N_2^3} - C = 0.00000$

$\frac{N_1^4}{N_2^4} - D = 0.00000$

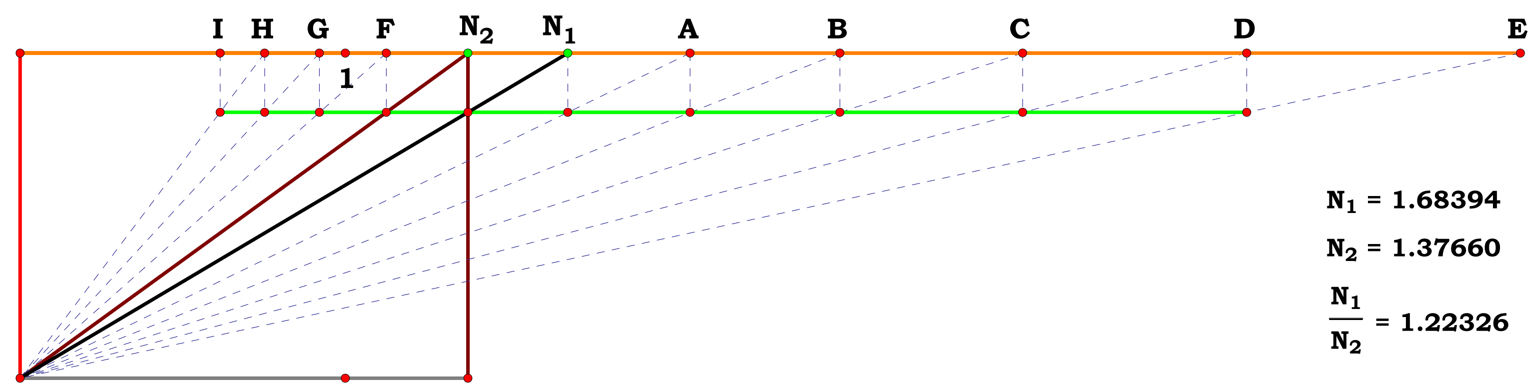
$\frac{N_1^5}{N_2^5} - E = 0.00000$

$\frac{N_2^4}{N_1^4} - I = 0.00000$

$\frac{N_2^3}{N_1^3} - H = 0.00000$

$\frac{N_2^2}{N_1^2} - G = 0.00000$

$\frac{N_2}{N_1} - F = 0.00000$



$N_1 = 1.68394$

$N_2 = 1.37660$

$\frac{N_1}{N_2} = 1.22326$

A = 2.05989

B = 2.51977

C = 3.08233

D = 3.77048

E = 4.61226

F = 1.12536

G = 0.91997

H = 0.75207

I = 0.61481

$N_1 \cdot \frac{N_1}{N_2}^{1} - A = 0.00000$

$N_1 \cdot \frac{N_1}{N_2}^{2} - B = 0.00000$

$N_1 \cdot \frac{N_1}{N_2}^{3} - C = 0.00000$

$N_1 \cdot \frac{N_1}{N_2}^{4} - D = 0.00000$

$N_1 \cdot \frac{N_1}{N_2}^{5} - E = 0.00000$

$N_1 \cdot \frac{N_1}{N_2}^{-1} - N_2 = 0.00000$

$N_1 \cdot \frac{N_1}{N_2}^{-2} - F = 0.00000$

$N_1 \cdot \frac{N_1}{N_2}^{-3} - G = 0.00000$

$N_1 \cdot \frac{N_1}{N_2}^{-4} - H = 0.00000$

$N_1 \cdot \frac{N_1}{N_2}^{-5} - I = 0.00000$

$\frac{N_1^2}{N_2} - A = 0.00000$

$\frac{N_1^3}{N_2^2} - B = 0.00000$

$\frac{N_1^4}{N_2^3} - C = 0.00000$

$\frac{N_1^5}{N_2^4} - D = 0.00000$

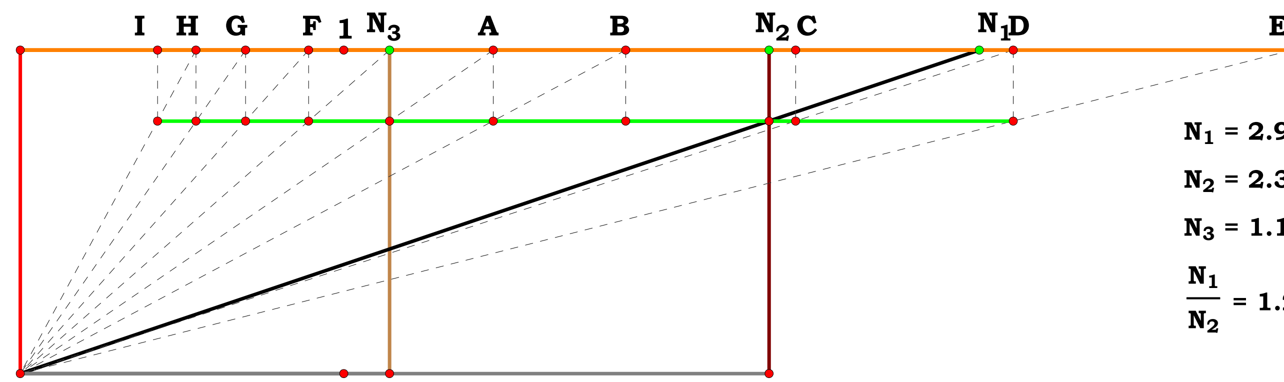
$\frac{N_1^6}{N_2^5} - E = 0.00000$

$\frac{N_2^5}{N_1^4} - I = 0.00000$

$\frac{N_2^4}{N_1^3} - H = 0.00000$

$\frac{N_2^3}{N_1^2} - G = 0.00000$

$\frac{N_2^2}{N_1} - F = 0.00000$



$N_1 = 2.96382$

$N_2 = 2.31441$

$N_3 = 1.14115$

$\frac{N_1}{N_2} = 1.28059$

A = 1.46135

B = 1.87140

C = 2.39649

D = 3.06893

E = 3.93005

F = 0.89111

G = 0.69586

H = 0.54339

I = 0.42433

$N_3\cdot\frac{N_1}{N_2}^{1} - A = 0.00000$

$N_3\cdot\frac{N_1}{N_2}^{2} - B = 0.00000$

$N_3\cdot\frac{N_1}{N_2}^{3} - C = 0.00000$

$N_3\cdot\frac{N_1}{N_2}^{4} - D = 0.00000$

$N_3\cdot\frac{N_1}{N_2}^{5} - E = 0.00000$

$N_3\cdot\frac{N_1}{N_2}^{-1} - F = 0.00000$

$N_3\cdot\frac{N_1}{N_2}^{-2} - G = 0.00000$

$N_3\cdot\frac{N_1}{N_2}^{-3} - H = 0.00000$

$N_3\cdot\frac{N_1}{N_2}^{-4} - I = 0.00000$

$\frac{N_1\cdot N_3}{N_2} - A = 0.00000$

$\frac{N_1^2\cdot N_3}{N_2^2} - B = 0.00000$

$\frac{N_1^3\cdot N_3}{N_2^3} - C = 0.00000$

$\frac{N_1^4\cdot N_3}{N_2^4} - D = 0.00000$

$\frac{N_1^5\cdot N_3}{N_2^5} - E = 0.00000$

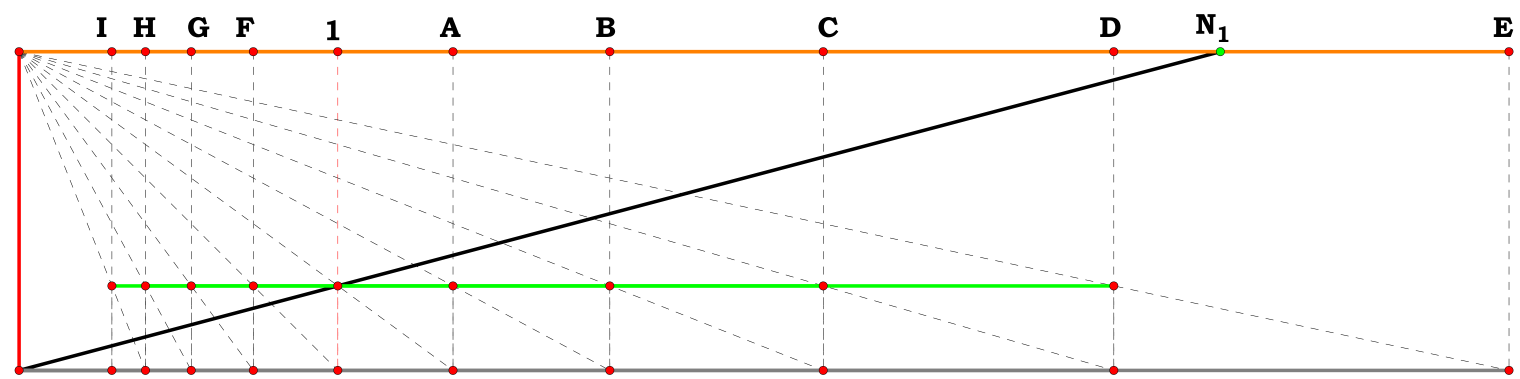
$\frac{N_2^4\cdot N_3}{N_1^4} - I = 0.00000$

$\frac{N_2^3\cdot N_3}{N_1^3} - H = 0.00000$

$\frac{N_2^2\cdot N_3}{N_1^2} - G = 0.00000$

$\frac{N_2\cdot N_3}{N_1} - F = 0.00000$

Plate 5



$N_1 = 3.76827$

$\frac{N_1}{N_1-1} = 1.36124$

A = 1.36124

B = 1.85297

C = 2.52232

D = 3.43348

E = 4.67378

F = 0.73463

G = 0.53968

H = 0.39646

I = 0.29125

$\left(\frac{N_1}{N_1-1}\right)^{1}-A = 0.00000$

$\left(\frac{N_1}{N_1-1}\right)^{2}-B = 0.00000$

$\left(\frac{N_1}{N_1-1}\right)^{3}-C = 0.00000$

$\left(\frac{N_1}{N_1-1}\right)^{4}-D = 0.00000$

$\left(\frac{N_1}{N_1-1}\right)^{5}-E = 0.00000$

$\left(\frac{N_1}{N_1-1}\right)^{-1}-F = 0.00000$

$\left(\frac{N_1}{N_1-1}\right)^{-2}-G = 0.00000$

$\left(\frac{N_1}{N_1-1}\right)^{-3}-H = 0.00000$

$\left(\frac{N_1}{N_1-1}\right)^{-4}-I = 0.00000$

$\frac{N_1}{N_1-1}-A = 0.00000$

$\frac{N_1^2}{(N_1^2-2\cdot N_1)+1}-B = 0.00000$

$\frac{N_1^3}{((N_1^3-3\cdot N_1^2)+3\cdot N_1)-1}-C = 0.00000$

$\frac{N_1^4}{(((N_1^4-4\cdot N_1^3)+6\cdot N_1^2)-4\cdot N_1)+1}-D = 0.00000$

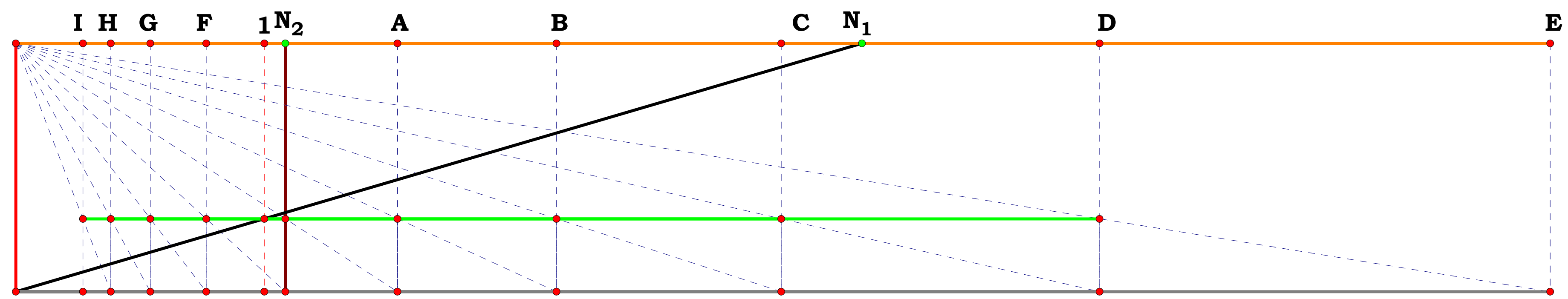
$\frac{N_1^5}{((((N_1^5-5\cdot N_1^4)+10\cdot N_1^3)-10\cdot N_1^2)+5\cdot N_1)-1}-E = 0.00000$

$\frac{(((N_1^4-4\cdot N_1^3)+6\cdot N_1^2)-4\cdot N_1)+1}{N_1^4}-I = 0.00000$

$\frac{((N_1^3-3\cdot N_1^2)+3\cdot N_1)-1}{N_1^3}-H = 0.00000$

$\frac{(N_1^2-2\cdot N_1)+1}{N_1^2}-G = 0.00000$

$\frac{N_1-1}{N_1}-F = 0.00000$



$N_1 = 3.40410$

$N_2 = 1.08464$

$\frac{N_1}{N_1-1} = 1.41596$

A = 1.53580
B = 2.17463
C = 3.07918
D = 4.35999
E = 6.17356
F = 0.76601
G = 0.54099
H = 0.38206
I = 0.26983

$N_2\cdot{\frac{N_1}{N_1-1}}^{1}-A = 0.00000$

$N_2\cdot{\frac{N_1}{N_1-1}}^{2}-B = 0.00000$

$N_2\cdot{\frac{N_1}{N_1-1}}^{3}-C = 0.00000$

$N_2\cdot{\frac{N_1}{N_1-1}}^{4}-D = 0.00000$

$N_2\cdot{\frac{N_1}{N_1-1}}^{5}-E = 0.00000$

$N_2\cdot{\frac{N_1}{N_1-1}}^{-1}-F = 0.00000$

$N_2\cdot{\frac{N_1}{N_1-1}}^{-2}-G = 0.00000$

$N_2\cdot{\frac{N_1}{N_1-1}}^{-3}-H = 0.00000$

$N_2\cdot{\frac{N_1}{N_1-1}}^{-4}-I = 0.00000$

$\frac{N_1\cdot N_2}{N_1-1}-A = 0.00000$

$\frac{N_1^2\cdot N_2}{(N_1^2-2\cdot N_1)+1}-B = 0.00000$

$\frac{N_1^3\cdot N_2}{((N_1^3-3\cdot N_1^2)+3\cdot N_1)-1}-C = 0.00000$

$\frac{N_1^4\cdot N_2}{(((N_1^4-4\cdot N_1^3)+6\cdot N_1^2)-4\cdot N_1)+1}-D = 0.00000$

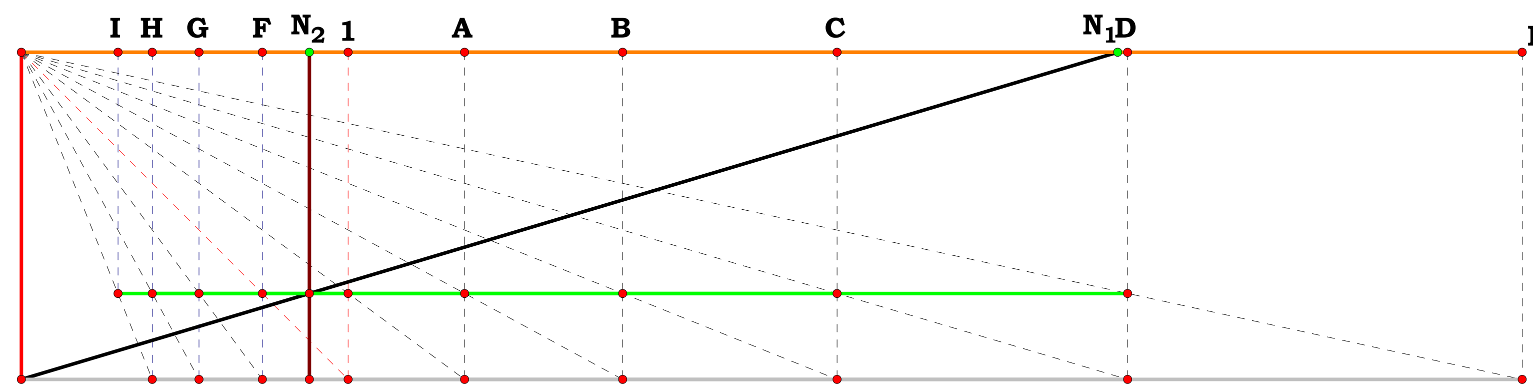
$\frac{N_1^5\cdot N_2}{((((N_1^5-5\cdot N_1^4)+10\cdot N_1^3)-10\cdot N_1^2)+5\cdot N_1)-1}-E = 0.00000$

$\frac{(((N_1^4\cdot N_2-4\cdot N_1^3\cdot N_2)+6\cdot N_1^2\cdot N_2)-4\cdot N_1\cdot N_2)+N_2}{N_1^4}-I = 0.00000$

$\frac{((N_1^3\cdot N_2-3\cdot N_1^2\cdot N_2)+3\cdot N_1\cdot N_2)-N_2}{N_1^3}-H = 0.00000$

$\frac{(N_1^2\cdot N_2-2\cdot N_1\cdot N_2)+N_2}{N_1^2}-G = 0.00000$

$\frac{N_1\cdot N_2-N_2}{N_1}-F = 0.00000$



$N_1 = 3.35471$

$N_2 = 0.88158$

$\frac{N_1}{N_1 - N_2} = 1.35646$

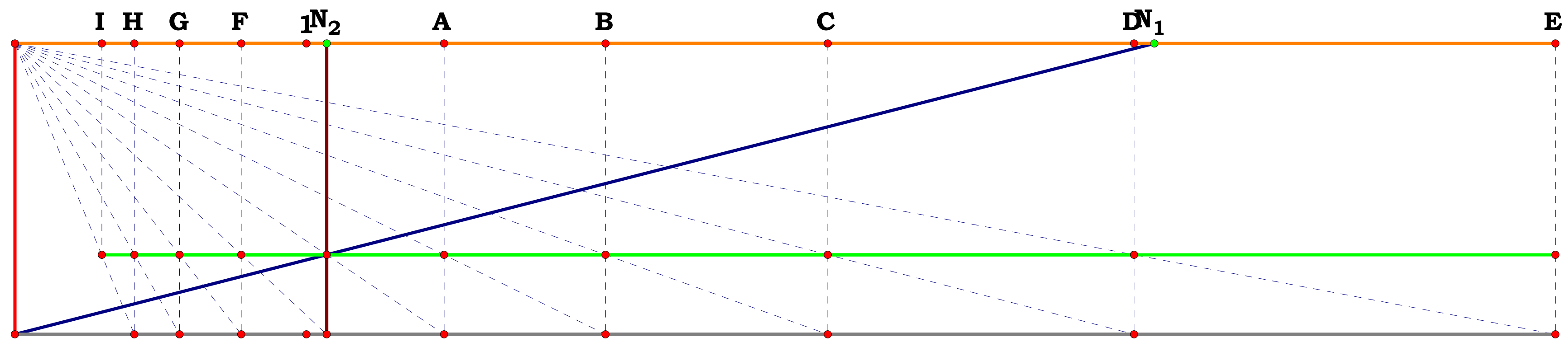
A = 1.35646
B = 1.83999
C = 2.49587
D = 3.38555
E = 4.59236
F = 0.73721
G = 0.54348
H = 0.40066
I = 0.29537

$$\frac{N_1}{N_1-N_2}^{1} - A = 0.00000$$
$$\frac{N_1}{N_1-N_2}^{2} - B = 0.00000$$
$$\frac{N_1}{N_1-N_2}^{3} - C = 0.00000$$
$$\frac{N_1}{N_1-N_2}^{4} - D = 0.00000$$
$$\frac{N_1}{N_1-N_2}^{5} - E = 0.00000$$

$$\frac{N_1}{N_1-N_2}^{-1} - F = 0.00000$$
$$\frac{N_1}{N_1-N_2}^{-2} - G = 0.00000$$
$$\frac{N_1}{N_1-N_2}^{-3} - H = 0.00000$$
$$\frac{N_1}{N_1-N_2}^{-4} - I = 0.00000$$

$$\frac{N_1}{N_1-N_2} - A = 0.00000$$
$$\frac{N_1^2}{(N_1^2 - 2 \cdot N_1 \cdot N_2) + N_2^2} - B = 0.00000$$
$$\frac{N_1^3}{((N_1^3 - 3 \cdot N_1^2 \cdot N_2) + 3 \cdot N_1 \cdot N_2^2) - N_2^3} - C = 0.00000$$
$$\frac{N_1^4}{(((N_1^4 - 4 \cdot N_1^3 \cdot N_2) + 6 \cdot N_1^2 \cdot N_2^2) - 4 \cdot N_1 \cdot N_2^3) + N_2^4} - D = 0.00000$$
$$\frac{N_1^5}{((((N_1^5 - 5 \cdot N_1^4 \cdot N_2) + 10 \cdot N_1^3 \cdot N_2^2) - 10 \cdot N_1^2 \cdot N_2^3) + 5 \cdot N_1 \cdot N_2^4) - N_2^5} - E = 0.00000$$

$$\frac{(((N_1^4 - 4 \cdot N_1^3 \cdot N_2) + 6 \cdot N_1^2 \cdot N_2^2) - 4 \cdot N_1 \cdot N_2^3) + N_2^4}{N_1^4} - I = 0.00000$$
$$\frac{((N_1^3 - 3 \cdot N_1^2 \cdot N_2) + 3 \cdot N_1 \cdot N_2^2) - N_2^3}{N_1^3} - H = 0.00000$$
$$\frac{(N_1^2 - 2 \cdot N_1 \cdot N_2) + N_2^2}{N_1^2} - G = 0.00000$$
$$\frac{N_1 - N_2}{N_1} - F = 0.00000$$



$N_1 = 3.90793$

$N_2 = 1.06894$

$\frac{N_1}{N_1 - N_2} = 1.37652$

A = 1.47142
B = 2.02544
C = 2.78806
D = 3.83782
E = 5.28284
F = 0.77655
G = 0.56414
H = 0.40983
I = 0.29773

$$N_2 \cdot \left(\frac{N_1}{N_1 - N_2}\right)^{1} - A = 0.00000$$

$$N_2 \cdot \left(\frac{N_1}{N_1 - N_2}\right)^{2} - B = 0.00000$$

$$N_2 \cdot \left(\frac{N_1}{N_1 - N_2}\right)^{3} - C = 0.00000$$

$$N_2 \cdot \left(\frac{N_1}{N_1 - N_2}\right)^{4} - D = 0.00000$$

$$N_2 \cdot \left(\frac{N_1}{N_1 - N_2}\right)^{5} - E = 0.00000$$

$$N_2 \cdot \left(\frac{N_1}{N_1 - N_2}\right)^{-1} - F = 0.00000$$

$$N_2 \cdot \left(\frac{N_1}{N_1 - N_2}\right)^{-2} - G = 0.00000$$

$$N_2 \cdot \left(\frac{N_1}{N_1 - N_2}\right)^{-3} - H = 0.00000$$

$$N_2 \cdot \left(\frac{N_1}{N_1 - N_2}\right)^{-4} - I = 0.00000$$

$$\frac{N_1 \cdot N_2}{N_1 - N_2} - A = 0.00000$$

$$\frac{(((N_1^4 \cdot N_2 - 4 \cdot N_1^3 \cdot N_2^2) + 6 \cdot N_1^2 \cdot N_2^3) - 4 \cdot N_1 \cdot N_2^4) + N_2^5}{N_1^4} - I = 0.00000$$

$$\frac{N_1^2 \cdot N_2}{(N_1^2 - 2 \cdot N_1 \cdot N_2) + N_2^2} - B = 0.00000$$

$$\frac{((N_1^3 \cdot N_2 - 3 \cdot N_1^2 \cdot N_2^2) + 3 \cdot N_1 \cdot N_2^3) - N_2^4}{N_1^3} - H = 0.00000$$

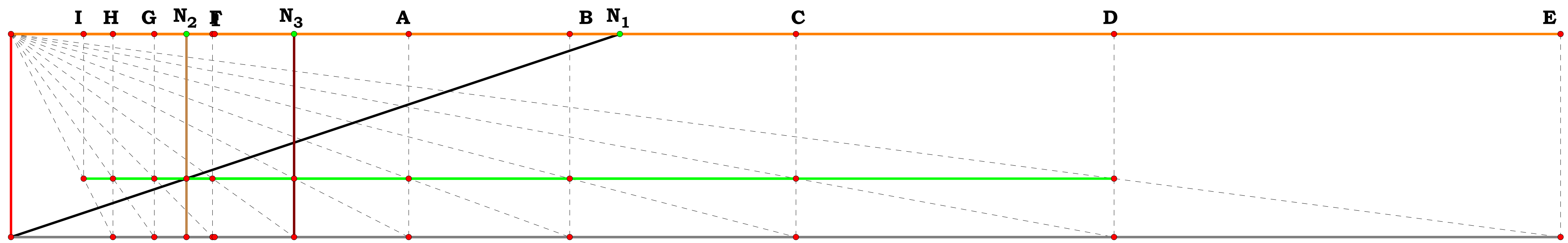
$$\frac{N_1^3 \cdot N_2}{((N_1^3 - 3 \cdot N_1^2 \cdot N_2) + 3 \cdot N_1 \cdot N_2^2) - N_2^3} - C = 0.00000$$

$$\frac{(N_1^2 \cdot N_2 - 2 \cdot N_1 \cdot N_2^2) + N_2^3}{N_1^2} - G = 0.00000$$

$$\frac{N_1^4 \cdot N_2}{(((N_1^4 - 4 \cdot N_1^3 \cdot N_2) + 6 \cdot N_1^2 \cdot N_2^2) - 4 \cdot N_1 \cdot N_2^3) + N_2^4} - D = 0.00000$$

$$\frac{N_1 \cdot N_2 - N_2^2}{N_1} - F = 0.00000$$

$$\frac{N_1^5 \cdot N_2}{((((N_1^5 - 5 \cdot N_1^4 \cdot N_2) + 10 \cdot N_1^3 \cdot N_2^2) - 10 \cdot N_1^2 \cdot N_2^3) + 5 \cdot N_1 \cdot N_2^4) - N_2^5} - E = 0.00000$$



$N_1 = 2.98906$

$N_2 = 0.86166$

$N_3 = 1.38922$

$\frac{N_1}{N_1-N_2} = 1.40503$

A = 1.95189

B = 2.74246

C = 3.85323

D = 5.41390

E = 7.60667

F = 0.98875

G = 0.70372

H = 0.50086

I = 0.35648

$N_3\cdot{\frac{N_1}{N_1-N_2}}^{1}-A = 0.00000$

$N_3\cdot{\frac{N_1}{N_1-N_2}}^{2}-B = 0.00000$

$N_3\cdot{\frac{N_1}{N_1-N_2}}^{3}-C = 0.00000$

$N_3\cdot{\frac{N_1}{N_1-N_2}}^{4}-D = 0.00000$

$N_3\cdot{\frac{N_1}{N_1-N_2}}^{5}-E = 0.00000$

$N_3\cdot{\frac{N_1}{N_1-N_2}}^{-1}-F = 0.00000$

$N_3\cdot{\frac{N_1}{N_1-N_2}}^{-2}-G = 0.00000$

$N_3\cdot{\frac{N_1}{N_1-N_2}}^{-3}-H = 0.00000$

$N_3\cdot{\frac{N_1}{N_1-N_2}}^{-4}-I = 0.00000$

$\frac{N_1\cdot N_3}{N_1-N_2}-A = 0.00000$

$\frac{N_1^2\cdot N_3}{(N_1^2-2\cdot N_1\cdot N_2)+N_2^2}-B = 0.00000$

$\frac{N_1^3\cdot N_3}{((N_1^3-3\cdot N_1^2\cdot N_2)+3\cdot N_1\cdot N_2^2)-N_2^3}-C = 0.00000$

$\frac{N_1^4\cdot N_3}{(((N_1^4-4\cdot N_1^3\cdot N_2)+6\cdot N_1^2\cdot N_2^2)-4\cdot N_1\cdot N_2^3)+N_2^4}-D = 0.00000$

$\frac{N_1^5\cdot N_3}{((((N_1^5-5\cdot N_1^4\cdot N_2)+10\cdot N_1^3\cdot N_2^2)-10\cdot N_1^2\cdot N_2^3)+5\cdot N_1\cdot N_2^4)-N_2^5}-E = 0.00000$

$\frac{(((N_1^4\cdot N_3-4\cdot N_1^3\cdot N_2\cdot N_3)+6\cdot N_1^2\cdot N_2^2\cdot N_3)-4\cdot N_1\cdot N_2^3\cdot N_3)+N_2^4\cdot N_3}{N_1^4}-I = 0.00000$

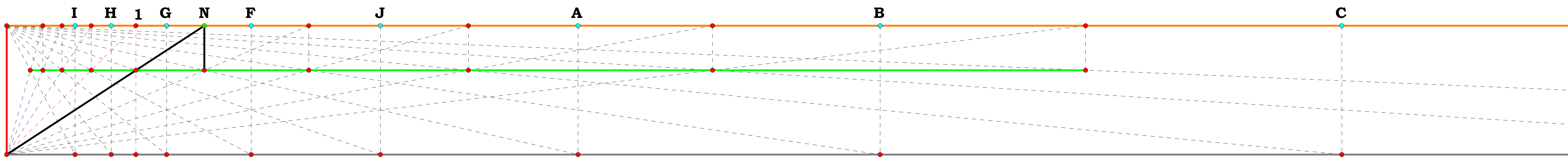
$\frac{((N_1^3\cdot N_3-3\cdot N_1^2\cdot N_2\cdot N_3)+3\cdot N_1\cdot N_2^2\cdot N_3)-N_2^3\cdot N_3}{N_1^3}-H = 0.00000$

$\frac{(N_1^2\cdot N_3-2\cdot N_1\cdot N_2\cdot N_3)+N_2^2\cdot N_3}{N_1^2}-G = 0.00000$

$\frac{N_1\cdot N_3-N_2\cdot N_3}{N_1}-F = 0.00000$

$N = 1.52865$

$\frac{N}{N-1} = 2.89162$



$J = 2.89162$

$A = 4.42026$

$B = 6.75703$

$C = 10.32913$

$D = 15.78961$

$E = 24.13676$

$F = 1.89162$

$G = 1.23744$

$H = 0.80950$

$I = 0.52955$

$N^0 \cdot \frac{N}{N-1} - J = 0.00000$

$N^1 \cdot \frac{N}{N-1} - A = 0.00000$

$N^2 \cdot \frac{N}{N-1} - B = 0.00000$

$N^3 \cdot \frac{N}{N-1} - C = 0.00000$

$N^4 \cdot \frac{N}{N-1} - D = 0.00000$

$N^5 \cdot \frac{N}{N-1} - E = 0.00000$

$N^{-1} \cdot \frac{N}{N-1} - F = 0.00000$

$N^{-2} \cdot \frac{N}{N-1} - G = 0.00000$

$N^{-3} \cdot \frac{N}{N-1} - H = 0.00000$

$N^{-4} \cdot \frac{N}{N-1} - I = 0.00000$

$\frac{N}{N-1} - J = 0.00000$

$\frac{N^2}{N-1} - A = 0.00000$

$\frac{N^3}{N-1} - B = 0.00000$

$\frac{N^4}{N-1} - C = 0.00000$

$\frac{N^5}{N-1} - D = 0.00000$

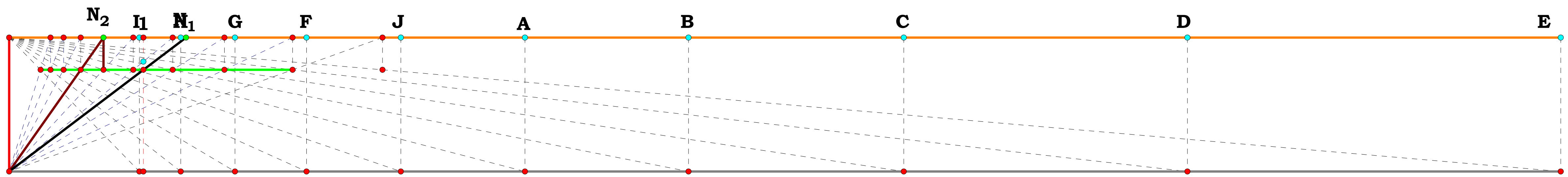
$\frac{N^6}{N-1} - E = 0.00000$

$\frac{1}{N-1} - F = 0.00000$

$\frac{1}{N^2-N} - G = 0.00000$

$\frac{1}{N^3-N^2} - H = 0.00000$

$\frac{1}{N^4-N^3} - I = 0.00000$



$N_1 = 1.31693$

$N_2 = 0.70206$

$\frac{N_1 \cdot N_2}{N_1 - 1} = 2.91723$

$J = 2.91723$

$A = 3.84179$

$B = 5.05937$

$C = 6.66284$

$D = 8.77451$

$E = 11.55542$

$F = 2.21517$

$G = 1.68207$

$H = 1.27727$

$I = 0.96988$

$N_1^{0} \cdot \frac{N_1 \cdot N_2}{N_1 - 1} - J = 0.00000$

$N_1^{1} \cdot \frac{N_1 \cdot N_2}{N_1 - 1} - A = 0.00000$

$N_1^{2} \cdot \frac{N_1 \cdot N_2}{N_1 - 1} - B = 0.00000$

$N_1^{3} \cdot \frac{N_1 \cdot N_2}{N_1 - 1} - C = 0.00000$

$N_1^{4} \cdot \frac{N_1 \cdot N_2}{N_1 - 1} - D = 0.00000$

$N_1^{5} \cdot \frac{N_1 \cdot N_2}{N_1 - 1} - E = 0.00000$

$N_1^{-1} \cdot \frac{N_1 \cdot N_2}{N_1 - 1} - F = 0.00000$

$N_1^{-2} \cdot \frac{N_1 \cdot N_2}{N_1 - 1} - G = 0.00000$

$N_1^{-3} \cdot \frac{N_1 \cdot N_2}{N_1 - 1} - H = 0.00000$

$N_1^{-4} \cdot \frac{N_1 \cdot N_2}{N_1 - 1} - I = 0.00000$

$\frac{N_1 \cdot N_2}{N_1 - 1} - J = 0.00000$

$\frac{N_1^2 \cdot N_2}{N_1 - 1} - A = 0.00000$

$\frac{N_1^3 \cdot N_2}{N_1 - 1} - B = 0.00000$

$\frac{N_1^4 \cdot N_2}{N_1 - 1} - C = 0.00000$

$\frac{N_1^5 \cdot N_2}{N_1 - 1} - D = 0.00000$

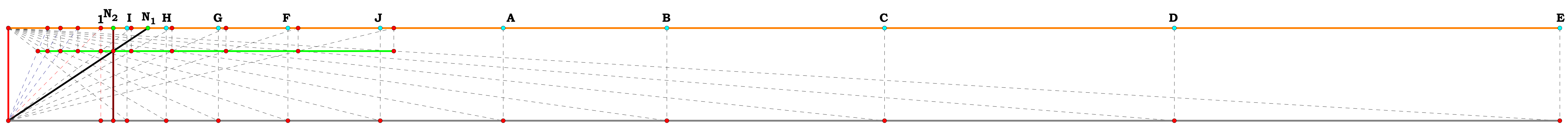
$\frac{N_1^6 \cdot N_2}{N_1 - 1} - E = 0.00000$

$\frac{N_2}{N_1 - 1} - F = 0.00000$

$\frac{N_2}{N_1^2 - N_1} - G = 0.00000$

$\frac{N_2}{N_1^3 - N_1^2} - H = 0.00000$

$\frac{N_2}{N_1^4 - N_1^3} - I = 0.00000$



$N_1 = 1.51037$

$N_2 = 1.13509$

$\frac{N_1}{N_2} = 1.33062$

$\frac{N_1}{N_1 \cdot N_2} = 4.02464$

J = 4.02464

A = 5.35525

B = 7.12580

C = 9.48172

D = 12.61655

E = 16.78781

F = 3.02464

G = 2.27310

H = 1.70831

I = 1.28384

$$\frac{N_1^{\,0}}{N_2} \cdot \frac{N_1}{N_1 \cdot N_2} - J = 0.00000$$

$$\frac{N_1^{\,1}}{N_2} \cdot \frac{N_1}{N_1 \cdot N_2} - A = 0.00000$$

$$\frac{N_1^{\,2}}{N_2} \cdot \frac{N_1}{N_1 \cdot N_2} - B = 0.00000$$

$$\frac{N_1^{\,3}}{N_2} \cdot \frac{N_1}{N_1 \cdot N_2} - C = 0.00000$$

$$\frac{N_1^{\,4}}{N_2} \cdot \frac{N_1}{N_1 \cdot N_2} - D = 0.00000$$

$$\frac{N_1^{\,5}}{N_2} \cdot \frac{N_1}{N_1 \cdot N_2} - E = 0.00000$$

$$\frac{N_1^{\,-1}}{N_2} \cdot \frac{N_1}{N_1 \cdot N_2} - F = 0.00000$$

$$\frac{N_1^{\,-2}}{N_2} \cdot \frac{N_1}{N_1 \cdot N_2} - G = 0.00000$$

$$\frac{N_1^{\,-3}}{N_2} \cdot \frac{N_1}{N_1 \cdot N_2} - H = 0.00000$$

$$\frac{N_1^{\,-4}}{N_2} \cdot \frac{N_1}{N_1 \cdot N_2} - I = 0.00000$$

$$\frac{N_1}{N_1 \cdot N_2} - J = 0.00000$$

$$\frac{N_1^2}{N_1 \cdot N_2 \cdot N_2^2} - A = 0.00000$$

$$\frac{N_1^3}{N_1 \cdot N_2^2 \cdot N_2^3} - B = 0.00000$$

$$\frac{N_1^4}{N_1 \cdot N_2^3 \cdot N_2^4} - C = 0.00000$$

$$\frac{N_1^5}{N_1 \cdot N_2^4 \cdot N_2^5} - D = 0.00000$$

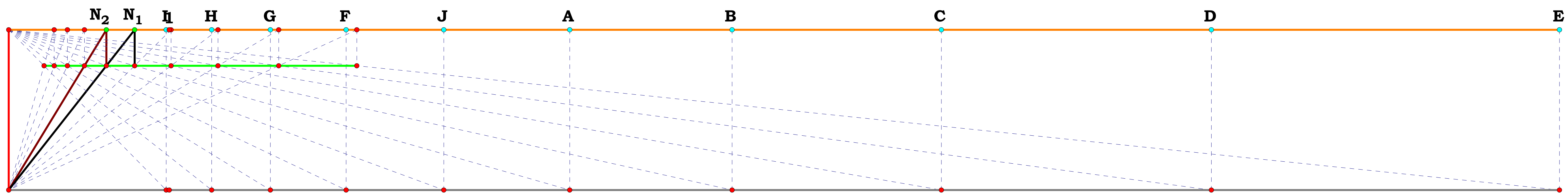
$$\frac{N_1^6}{N_1 \cdot N_2^5 \cdot N_2^6} - E = 0.00000$$

$$\frac{N_2}{N_1 \cdot N_2} - F = 0.00000$$

$$\frac{N_2^2}{N_1^2 \cdot N_1 \cdot N_2} - G = 0.00000$$

$$\frac{N_2^3}{N_1^3 \cdot N_1^2 \cdot N_2} - H = 0.00000$$

$$\frac{N_2^4}{N_1^4 \cdot N_1^3 \cdot N_2} - I = 0.00000$$



$N_1 = 0.78415$

$N_2 = 0.60814$

$\frac{N_1}{N_2} = 1.28943$

$\frac{N_1 \cdot N_2}{N_1 - N_2} = 2.70928$

$J = 2.70928$

$A = 3.49343$

$B = 4.50454$

$C = 5.80830$

$D = 7.48941$

$E = 9.65708$

$F = 2.10114$

$G = 1.62951$

$H = 1.26374$

$I = 0.98008$

$\frac{N_1{}^0}{N_2} \cdot \frac{N_1 \cdot N_2}{N_1 - N_2} - J = 0.00000$

$\frac{N_1{}^1}{N_2} \cdot \frac{N_1 \cdot N_2}{N_1 - N_2} - A = 0.00000$

$\frac{N_1{}^2}{N_2} \cdot \frac{N_1 \cdot N_2}{N_1 - N_2} - B = 0.00000$

$\frac{N_1{}^3}{N_2} \cdot \frac{N_1 \cdot N_2}{N_1 - N_2} - C = 0.00000$

$\frac{N_1{}^4}{N_2} \cdot \frac{N_1 \cdot N_2}{N_1 - N_2} - D = 0.00000$

$\frac{N_1{}^5}{N_2} \cdot \frac{N_1 \cdot N_2}{N_1 - N_2} - E = 0.00000$

$\frac{N_1{}^{-1}}{N_2} \cdot \frac{N_1 \cdot N_2}{N_1 - N_2} - F = 0.00000$

$\frac{N_1{}^{-2}}{N_2} \cdot \frac{N_1 \cdot N_2}{N_1 - N_2} - G = 0.00000$

$\frac{N_1{}^{-3}}{N_2} \cdot \frac{N_1 \cdot N_2}{N_1 - N_2} - H = 0.00000$

$\frac{N_1{}^{-4}}{N_2} \cdot \frac{N_1 \cdot N_2}{N_1 - N_2} - I = 0.00000$

$\frac{N_1 \cdot N_2}{N_1 - N_2} - J = 0.00000$

$\frac{N_1{}^2}{N_1 - N_2} - A = 0.00000$

$\frac{N_1{}^3}{N_1 \cdot N_2 - N_2{}^2} - B = 0.00000$

$\frac{N_1{}^4}{N_1 \cdot N_2{}^2 - N_2{}^3} - C = 0.00000$

$\frac{N_1{}^5}{N_1 \cdot N_2{}^3 - N_2{}^4} - D = 0.00000$

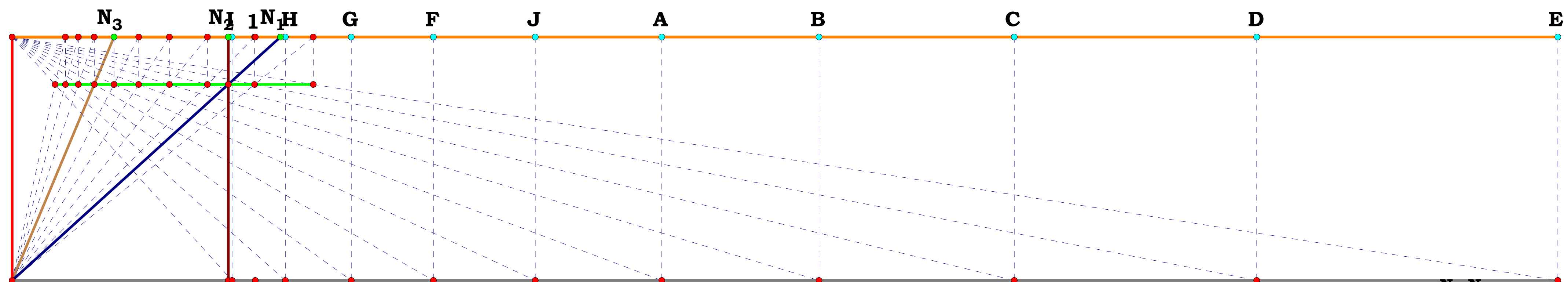
$\frac{N_1{}^6}{N_1 \cdot N_2{}^4 - N_2{}^5} - E = 0.00000$

$\frac{N_2{}^2}{N_1 - N_2} - F = 0.00000$

$\frac{N_2{}^3}{N_1{}^2 - N_1 \cdot N_2} - G = 0.00000$

$\frac{N_2{}^4}{N_1{}^3 - N_1{}^2 \cdot N_2} - H = 0.00000$

$\frac{N_2{}^5}{N_1{}^4 - N_1{}^3 \cdot N_2} - I = 0.00000$



$N_1 = 1.10350$

$N_2 = 0.88853$

$N_3 = 0.41903$

$\frac{N_1}{N_2} = 1.24195$

$\frac{N_1 \cdot N_3}{N_1 - N_2} = 2.15096$

J = 2.15096

A = 2.67138

B = 3.31772

C = 4.12043

D = 5.11735

E = 6.35548

F = 1.73193

G = 1.39453

H = 1.12286

I = 0.90411

$$\frac{N_1{}^0}{N_2} \cdot \frac{N_1 \cdot N_3}{N_1 - N_2} - J = 0.00000$$

$$\frac{N_1{}^1}{N_2} \cdot \frac{N_1 \cdot N_3}{N_1 - N_2} - A = 0.00000$$

$$\frac{N_1{}^2}{N_2} \cdot \frac{N_1 \cdot N_3}{N_1 - N_2} - B = 0.00000$$

$$\frac{N_1{}^3}{N_2} \cdot \frac{N_1 \cdot N_3}{N_1 - N_2} - C = 0.00000$$

$$\frac{N_1{}^4}{N_2} \cdot \frac{N_1 \cdot N_3}{N_1 - N_2} - D = 0.00000$$

$$\frac{N_1{}^5}{N_2} \cdot \frac{N_1 \cdot N_3}{N_1 - N_2} - E = 0.00000$$

$$\frac{N_1{}^{-1}}{N_2} \cdot \frac{N_1 \cdot N_3}{N_1 - N_2} - F = 0.00000$$

$$\frac{N_1{}^{-2}}{N_2} \cdot \frac{N_1 \cdot N_3}{N_1 - N_2} - G = 0.00000$$

$$\frac{N_1{}^{-3}}{N_2} \cdot \frac{N_1 \cdot N_3}{N_1 - N_2} - H = 0.00000$$

$$\frac{N_1{}^{-4}}{N_2} \cdot \frac{N_1 \cdot N_3}{N_1 - N_2} - I = 0.00000$$

$$\frac{N_1 \cdot N_3}{N_1 - N_2} - J = 0.00000$$

$$\frac{N_1{}^2 \cdot N_3}{N_1 \cdot N_2 - N_2{}^2} - A = 0.00000$$

$$\frac{N_1{}^3 \cdot N_3}{N_1 \cdot N_2{}^2 - N_2{}^3} - B = 0.00000$$

$$\frac{N_1{}^4 \cdot N_3}{N_1 \cdot N_2{}^3 - N_2{}^4} - C = 0.00000$$

$$\frac{N_1{}^5 \cdot N_3}{N_1 \cdot N_2{}^4 - N_2{}^5} - D = 0.00000$$

$$\frac{N_1{}^6 \cdot N_3}{N_1 \cdot N_2{}^5 - N_2{}^6} - E = 0.00000$$

$$\frac{N_2 \cdot N_3}{N_1 - N_2} - F = 0.00000$$

$$\frac{N_2{}^2 \cdot N_3}{N_1{}^2 - N_1 \cdot N_2} - G = 0.00000$$

$$\frac{N_2{}^3 \cdot N_3}{N_1{}^3 - N_1{}^2 \cdot N_2} - H = 0.00000$$

$$\frac{N_2{}^4 \cdot N_3}{N_1{}^4 - N_1{}^3 \cdot N_2} - I = 0.00000$$

Show Lines

0

1

$N_1 = 0.53608$

$R_1 = 0.14791$

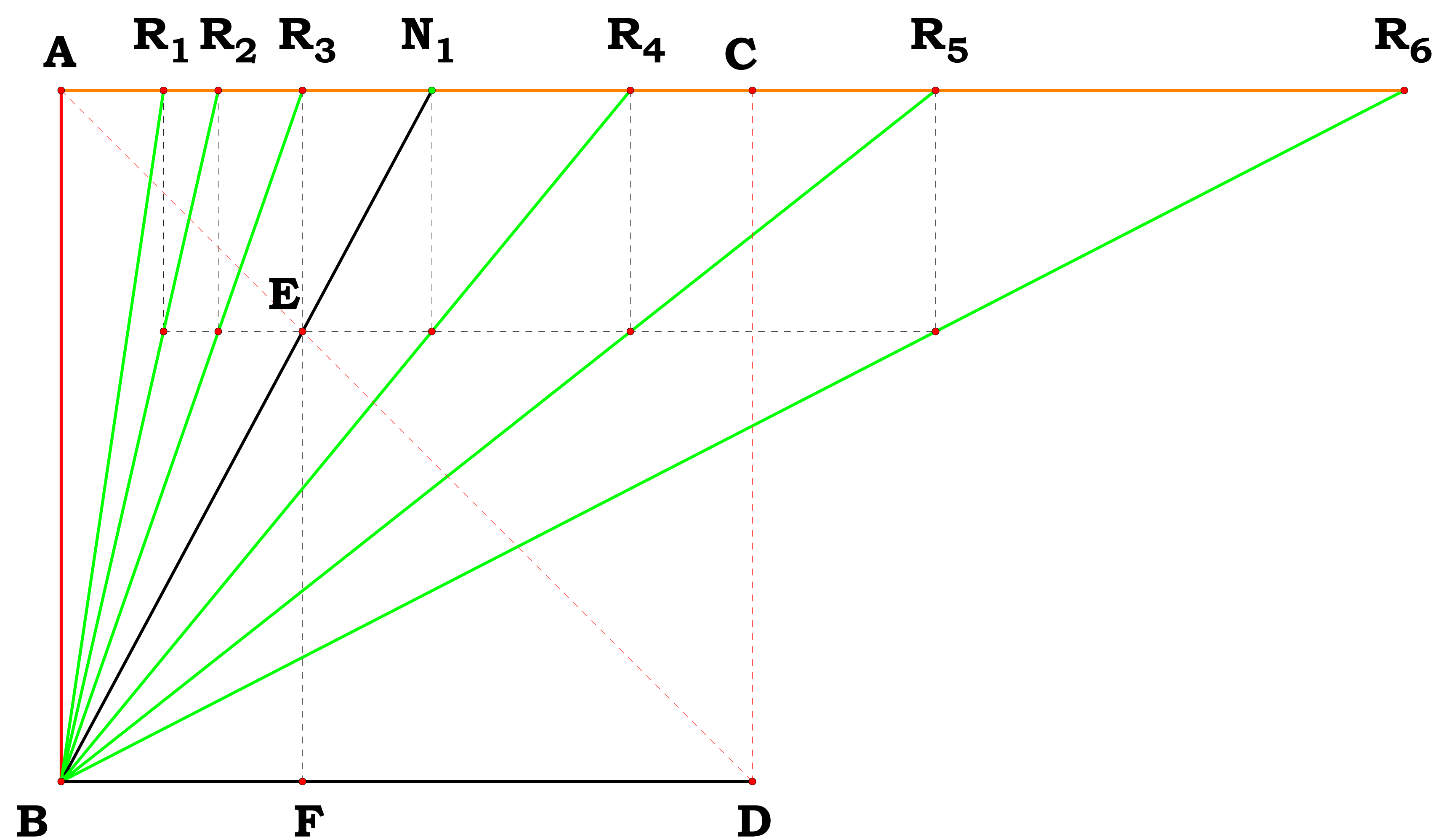
$R_2 = 0.22720$

$R_3 = 0.34899$

$R_4 = 0.82347$

$R_5 = 1.26492$

$R_6 = 1.94302$



Show Lines

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1

$N_1 = 0.30457$

$N_2 = 1.84332$

$R_1 = 0.83023$

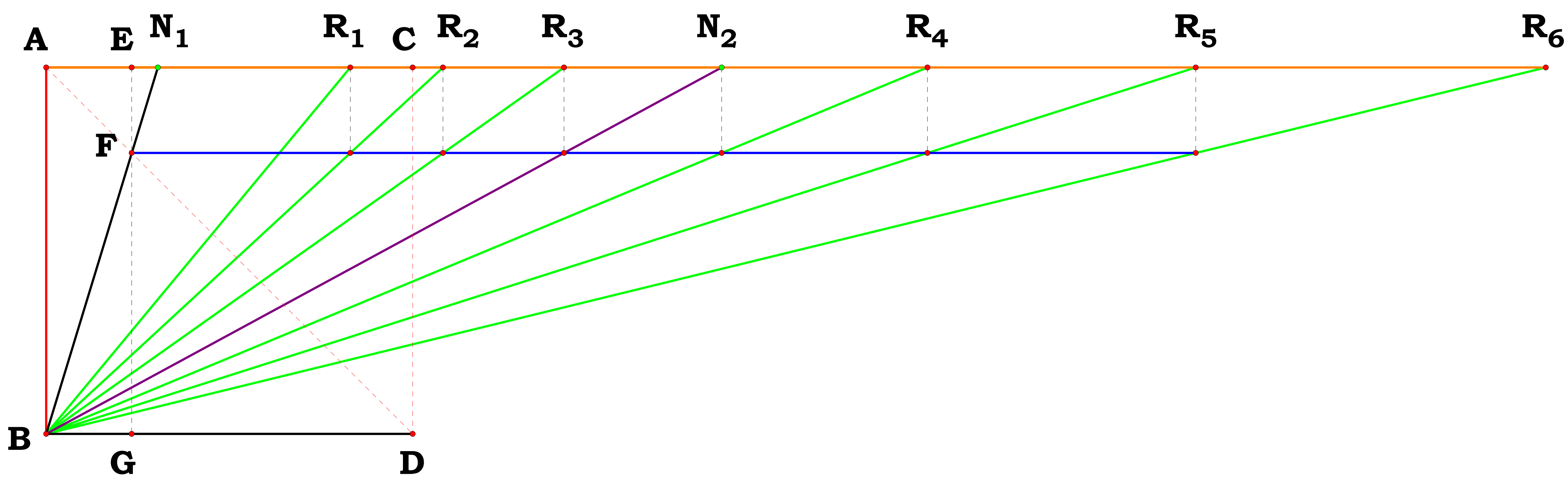
$R_2 = 1.08309$

$R_3 = 1.41297$

$R_4 = 2.40473$

$R_5 = 3.13714$

$R_6 = 4.09261$



Show Lines

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1

$N_1 = 0.91460$

$N_2 = 3.65482$

$R_1 = 0.46800$

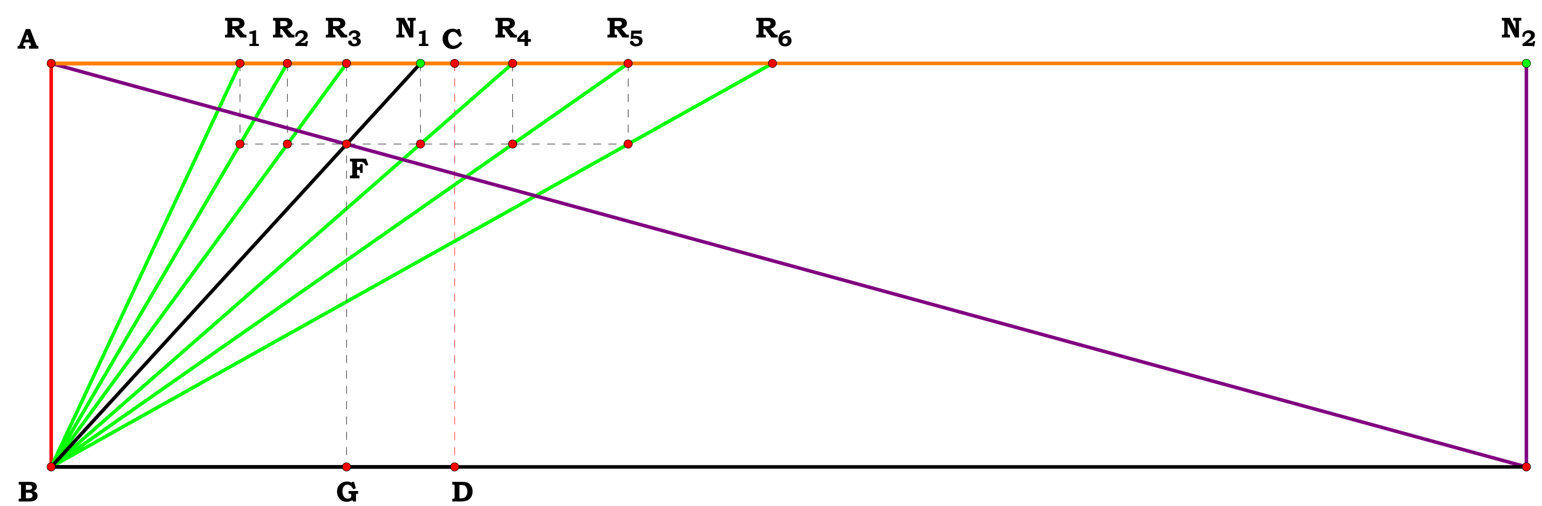
$R_2 = 0.58511$

$R_3 = 0.73154$

$R_4 = 1.14348$

$R_5 = 1.42962$

$R_6 = 1.78738$



Show Lines

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$N_1 = 0.81913$

$N_2 = 4.51670$

$N_3 = 2.41008$

$R_1 = 1.46181$

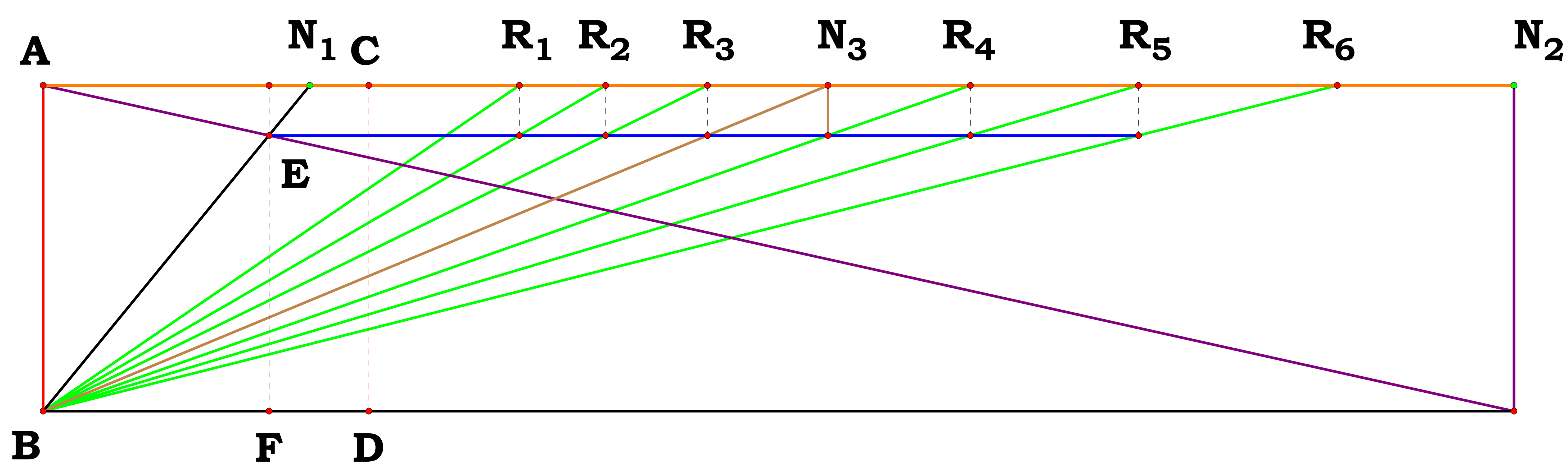
$R_2 = 1.72692$

$R_3 = 2.04010$

$R_4 = 2.84716$

$R_5 = 3.36351$

$R_6 = 3.97350$



Show Lines

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1

$N_1 = 3.02713$

$R_1 = 0.42472$

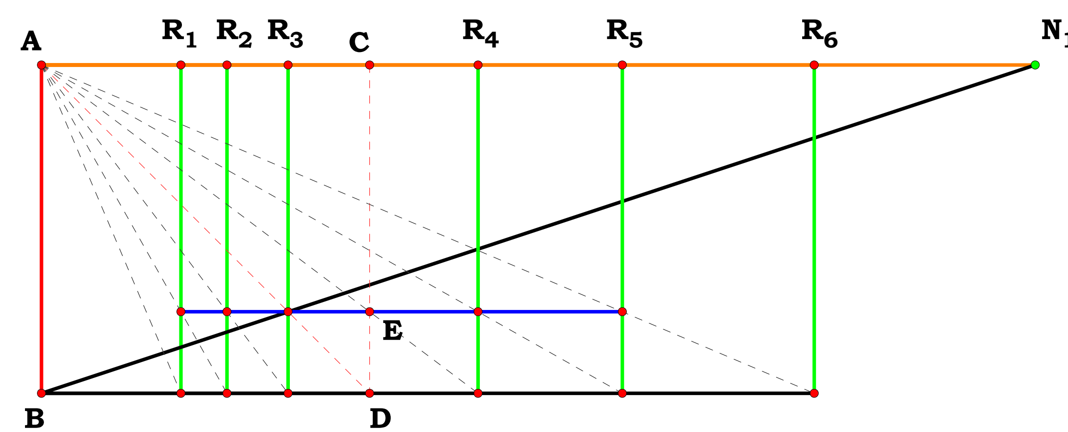
$R_2 = 0.56503$

$R_3 = 0.75168$

$R_4 = 1.33035$

$R_5 = 1.76982$

$R_6 = 2.35447$



Show Lines

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$N_1 = 4.53658$

$N_2 = 1.62541$

$R_1 = 0.64861$

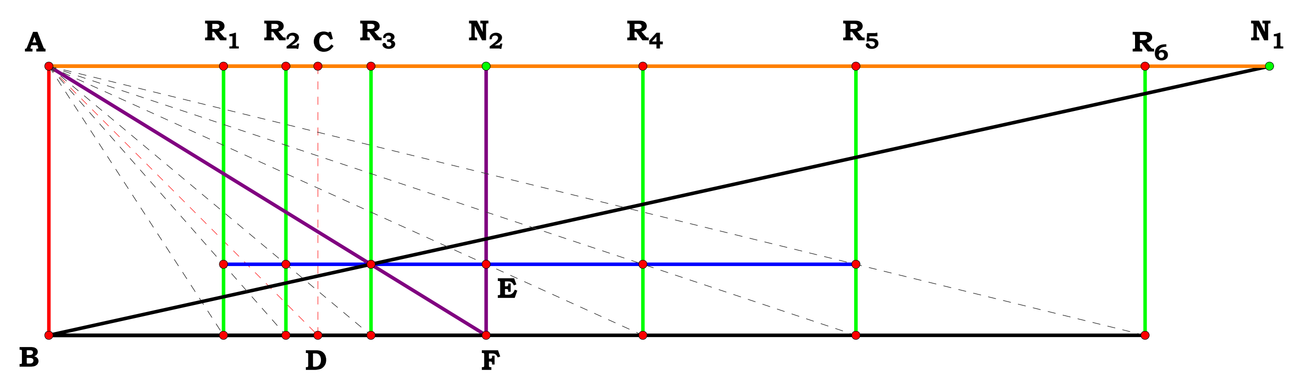
$R_2 = 0.88101$

$R_3 = 1.19666$

$R_4 = 2.20778$

$R_5 = 2.99881$

$R_6 = 4.07326$



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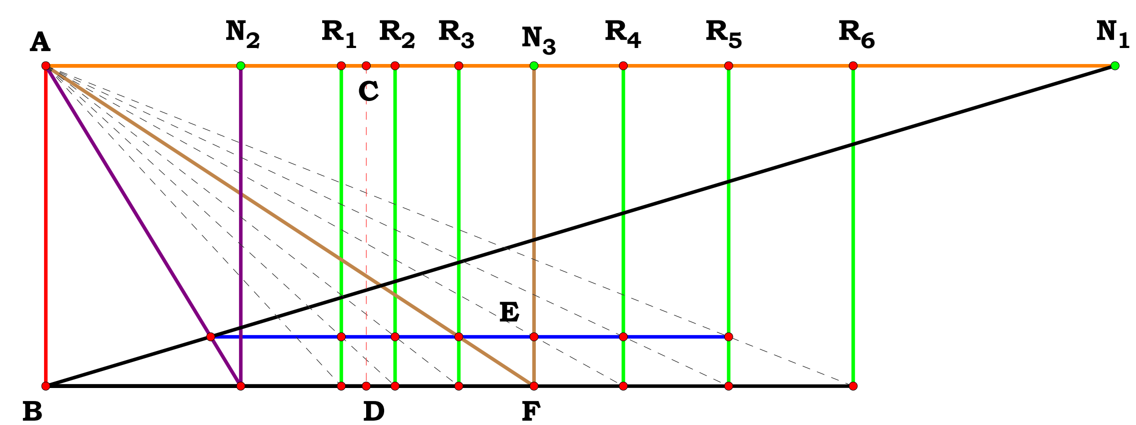
$N_1 = 3.33571$
$N_2 = 0.60841$
$N_3 = 1.52355$
$R_1 = 0.92166$
$R_2 = 1.08976$
$R_3 = 1.28853$
$R_4 = 1.80143$
$R_5 = 2.13000$
$R_6 = 2.51849$



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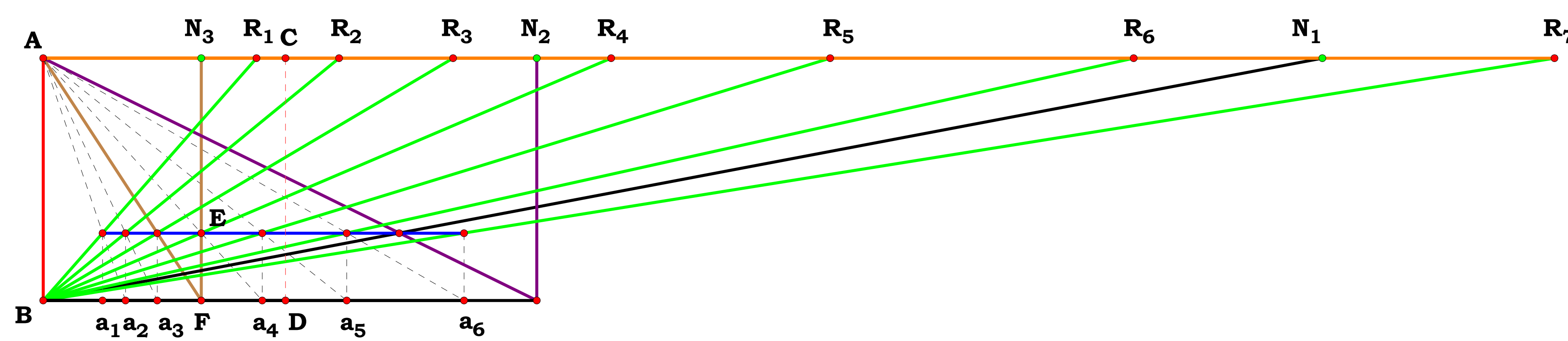
Show Lines

$N_1 = 5.27896$
$N_2 = 2.03640$
$N_3 = 0.65237$
$R_1 = 0.88066$
$R_2 = 1.22038$
$R_3 = 1.69115$
$R_4 = 2.34353$
$R_5 = 3.24756$
$R_6 = 4.50033$
$R_7 = 6.23636$



$x_{a_1} = 0.24515$
$x_{a_2} = 0.33972$
$x_{a_3} = 0.47077$
$x_{a_4} = 0.90403$
$x_{a_5} = 1.25277$
$x_{a_6} = 1.73604$

Circle

Show Lines

0

1

$N_1 = 1.55615$

$R_1 = 0.16123$

$R_2 = 0.22781$

$R_3 = 0.32188$

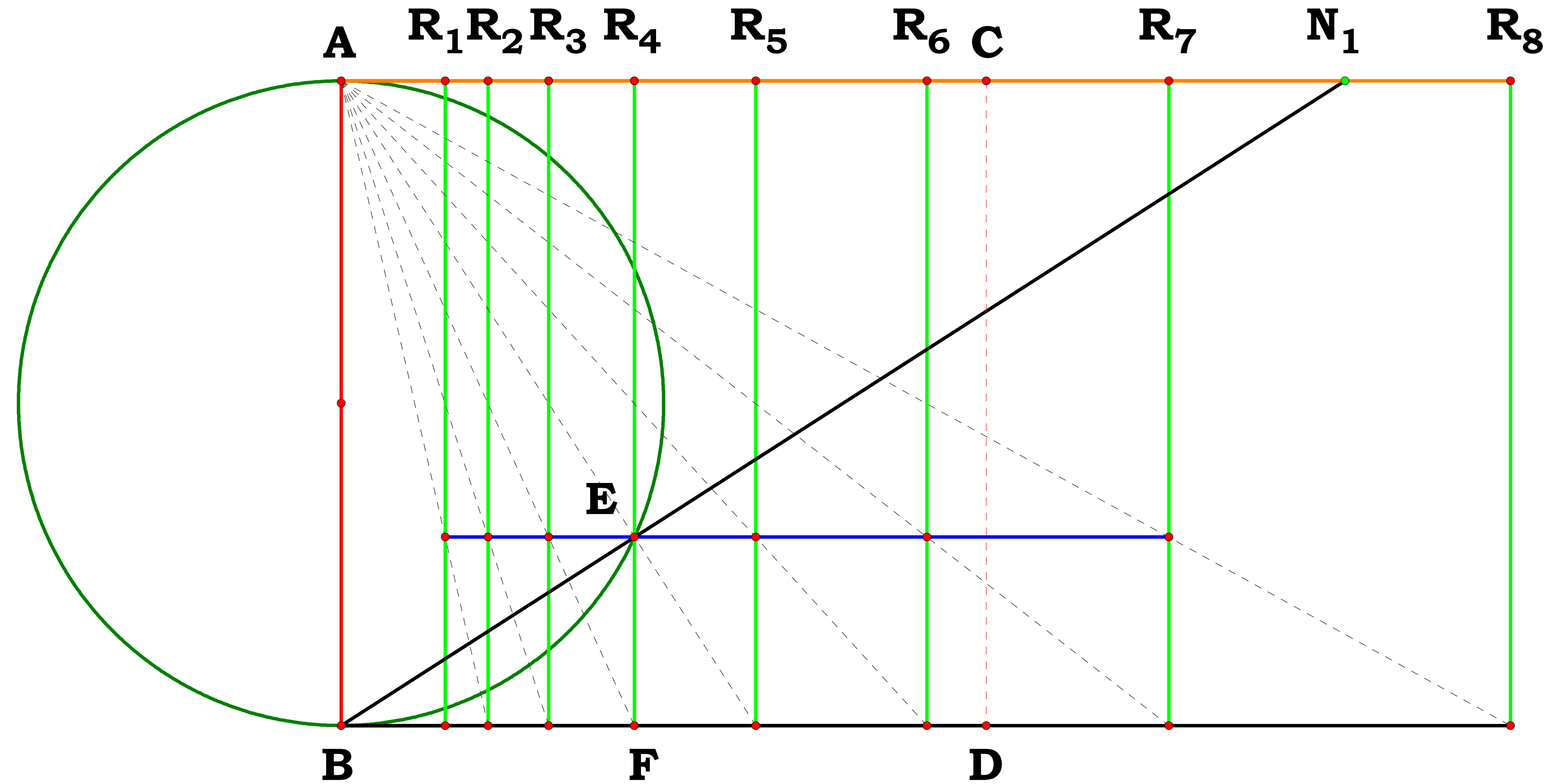
$R_4 = 0.45480$

$R_5 = 0.64261$

$R_6 = 0.90798$

$R_7 = 1.28293$

$R_8 = 1.81271$



Circle

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1

$N_1 = 1.67987$

$R_1 = 0.67619$

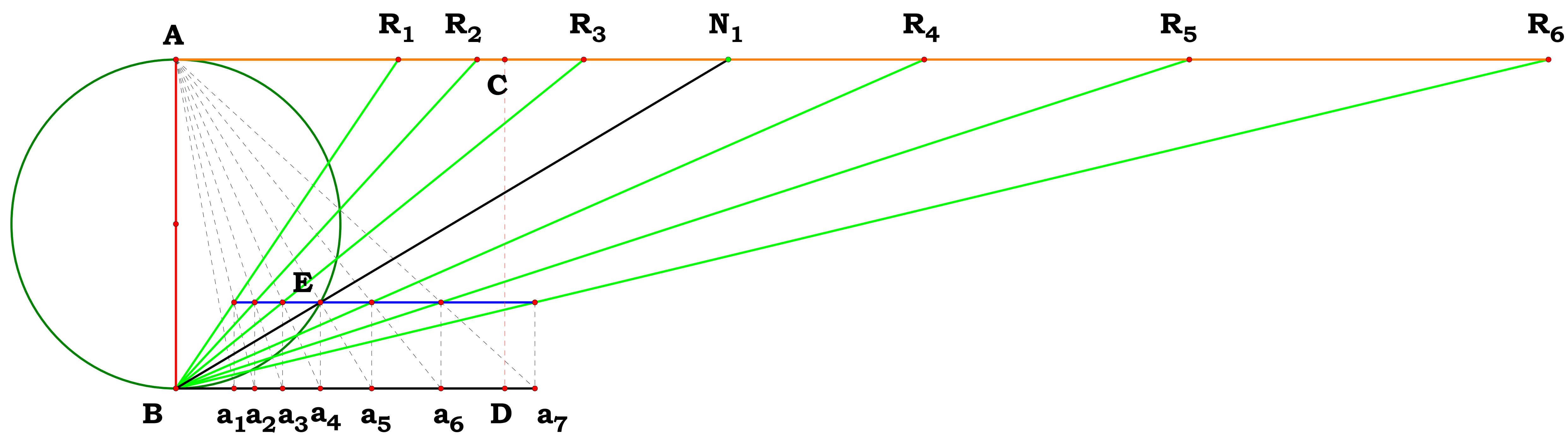
$R_2 = 0.91580$

$R_3 = 1.24033$

$R_4 = 2.27515$

$R_5 = 3.08139$

$R_6 = 4.17332$



Circle

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$N_1 = 2.35356$

$N_2 = 1.84796$

$R_1 = 1.12321$

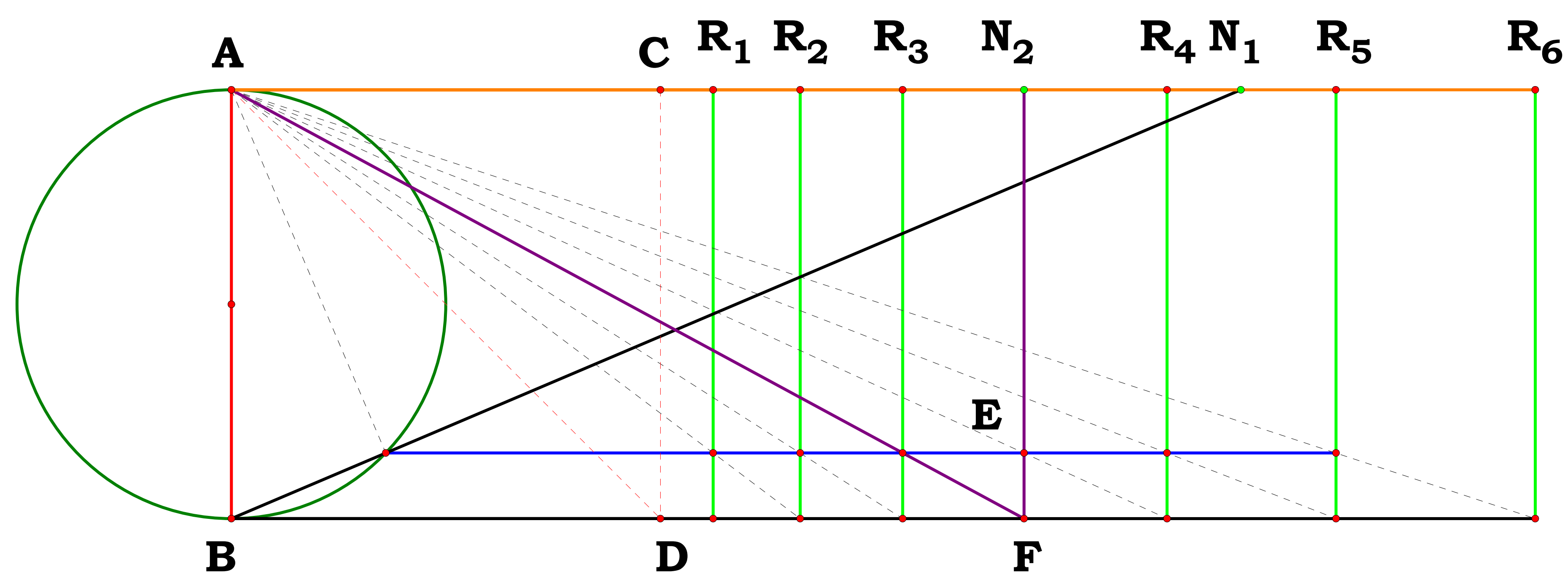
$R_2 = 1.32598$

$R_3 = 1.56536$

$R_4 = 2.18157$

$R_5 = 2.57541$

$R_6 = 3.04035$



Circle

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1

$N_1 = 1.55215$

$N_2 = 0.38311$

$R_1 = 0.46093$

$R_2 = 0.65225$

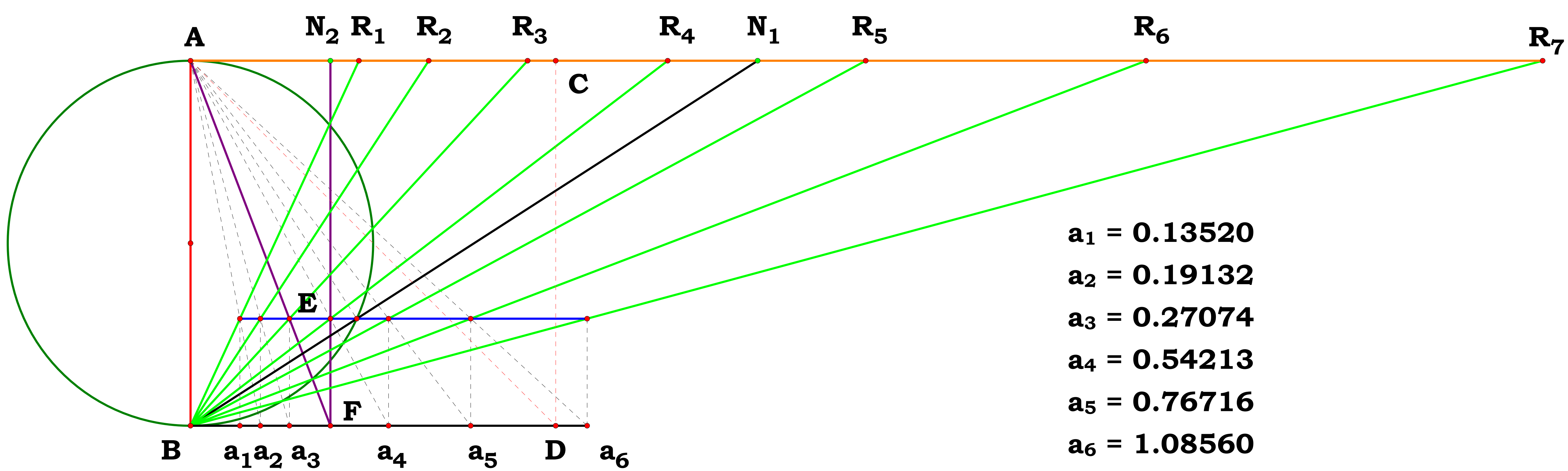
$R_3 = 0.92299$

$R_4 = 1.30610$

$R_5 = 1.84824$

$R_6 = 2.61540$

$R_7 = 3.70100$



$a_1 = 0.13520$

$a_2 = 0.19132$

$a_3 = 0.27074$

$a_4 = 0.54213$

$a_5 = 0.76716$

$a_6 = 1.08560$

Circle
Show Lines
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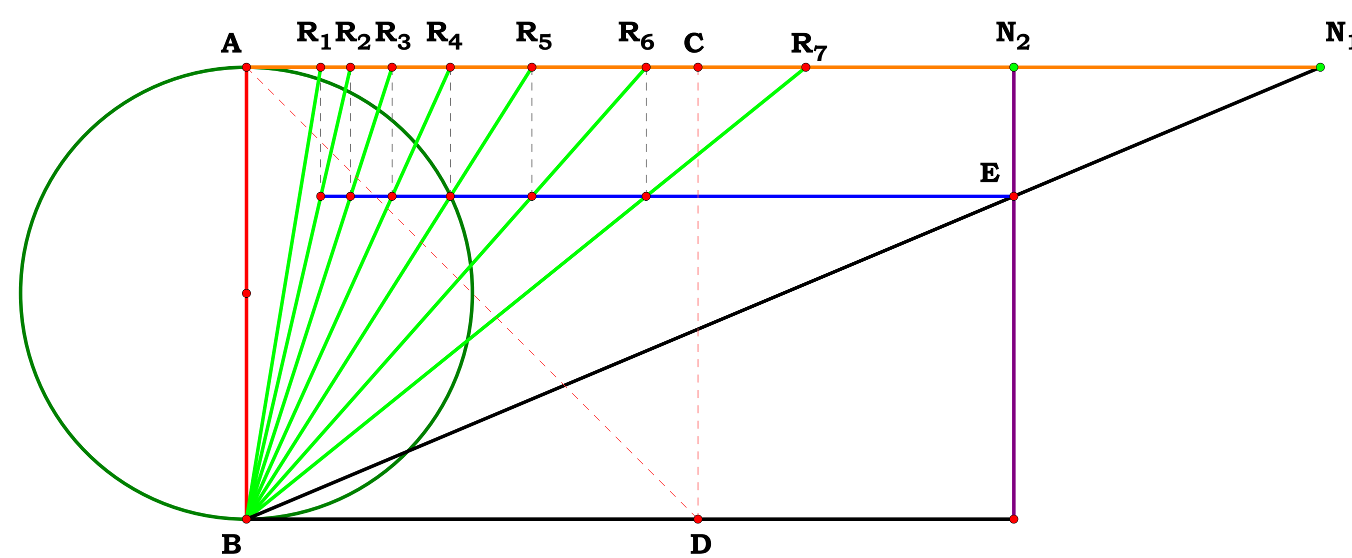
1

$N_1 = 2.37839$
$N_2 = 1.69911$
$R_1 = 0.16469$
$R_2 = 0.23053$
$R_3 = 0.32269$
$R_4 = 0.45170$
$R_5 = 0.63229$
$R_6 = 0.88507$
$R_7 = 1.23891$



Circle

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1

$N_1 = 1.80156$

$N_2 = 1.34513$

$R_1 = 0.53353$

$R_2 = 0.71457$

$R_3 = 0.95704$

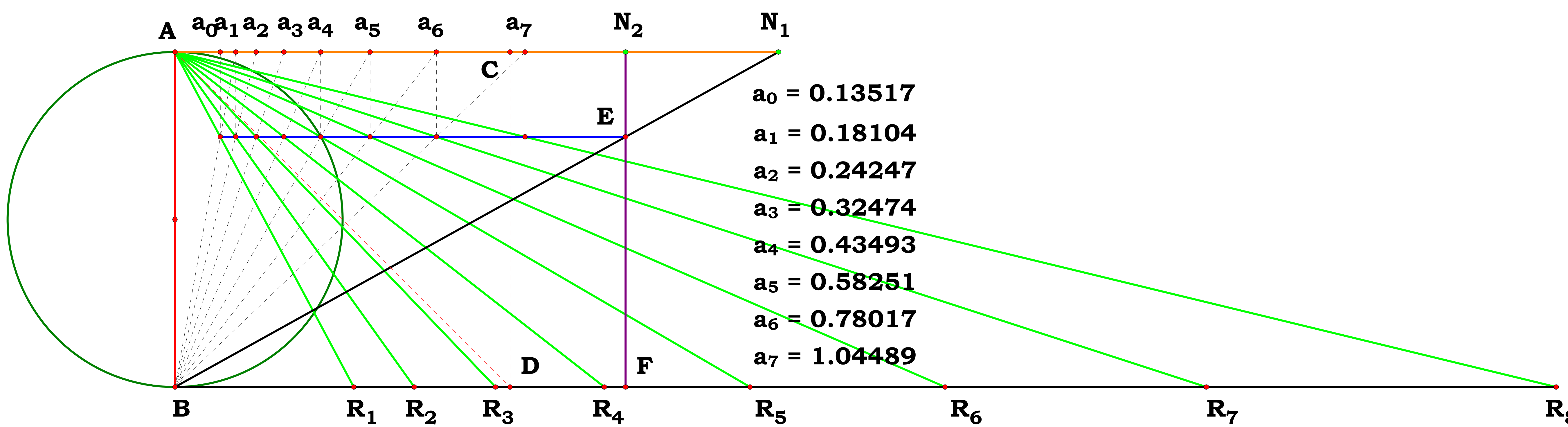
$R_4 = 1.28178$

$R_5 = 1.71671$

$R_6 = 2.29922$

$R_7 = 3.07938$

$R_8 = 4.12428$



Circle

Show Lines

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1

$N_1 = 3.00270$

$N_2 = 1.12066$

$R_1 = 0.11909$

$R_2 = 0.19001$

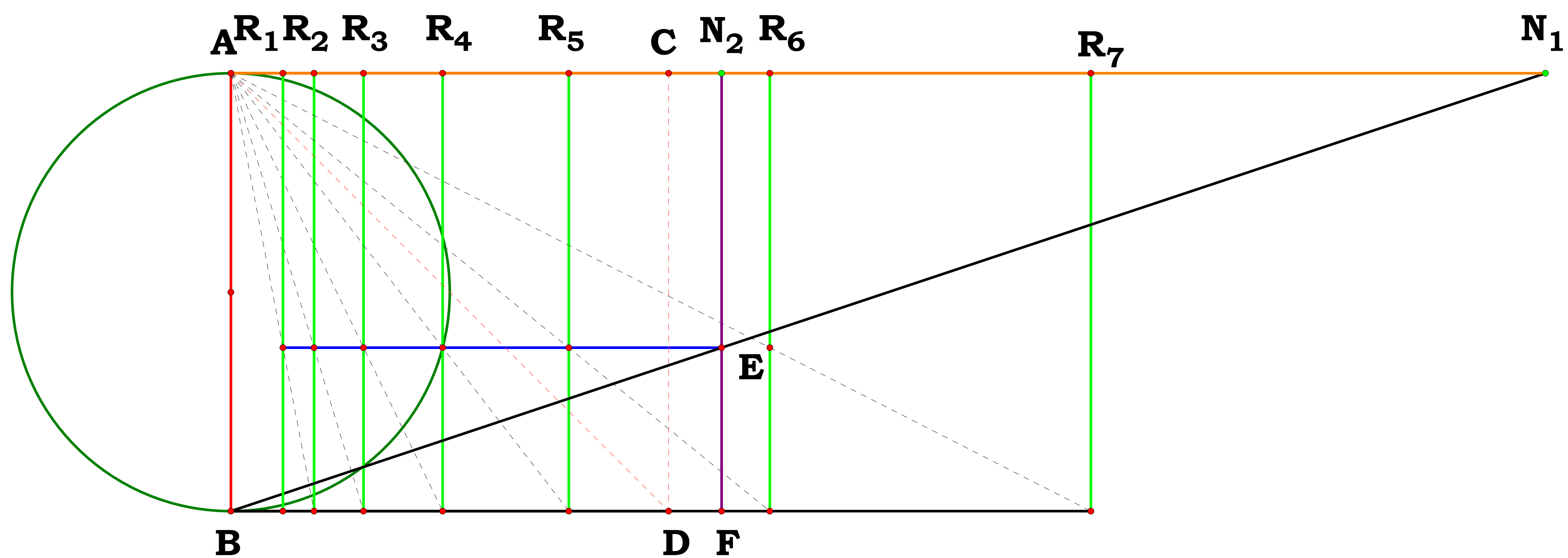
$R_3 = 0.30315$

$R_4 = 0.48366$

$R_5 = 0.77165$

$R_6 = 1.23113$

$R_7 = 1.96421$



Circle

Show Lines

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1

$N_1 = 3.41178$

$N_2 = 0.87424$

$R_1 = 0.70095$

$R_2 = 0.94245$

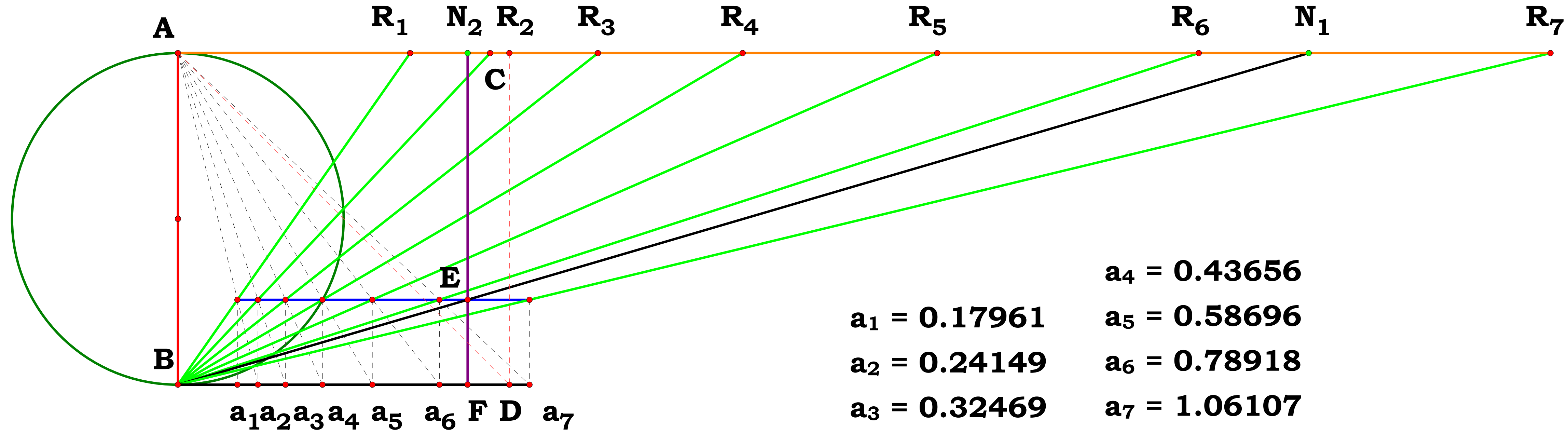
$R_3 = 1.26714$

$R_4 = 1.70370$

$R_5 = 2.29066$

$R_6 = 3.07983$

$R_7 = 4.14090$



$a_1 = 0.17961$

$a_2 = 0.24149$

$a_3 = 0.32469$

$a_4 = 0.43656$

$a_5 = 0.58696$

$a_6 = 0.78918$

$a_7 = 1.06107$

Circle

Show Lines

0

1

0

1

$N_1 = 1.88668$

$N_2 = 0.74332$

$R_1 = 0.81004$

$R_2 = 0.95928$

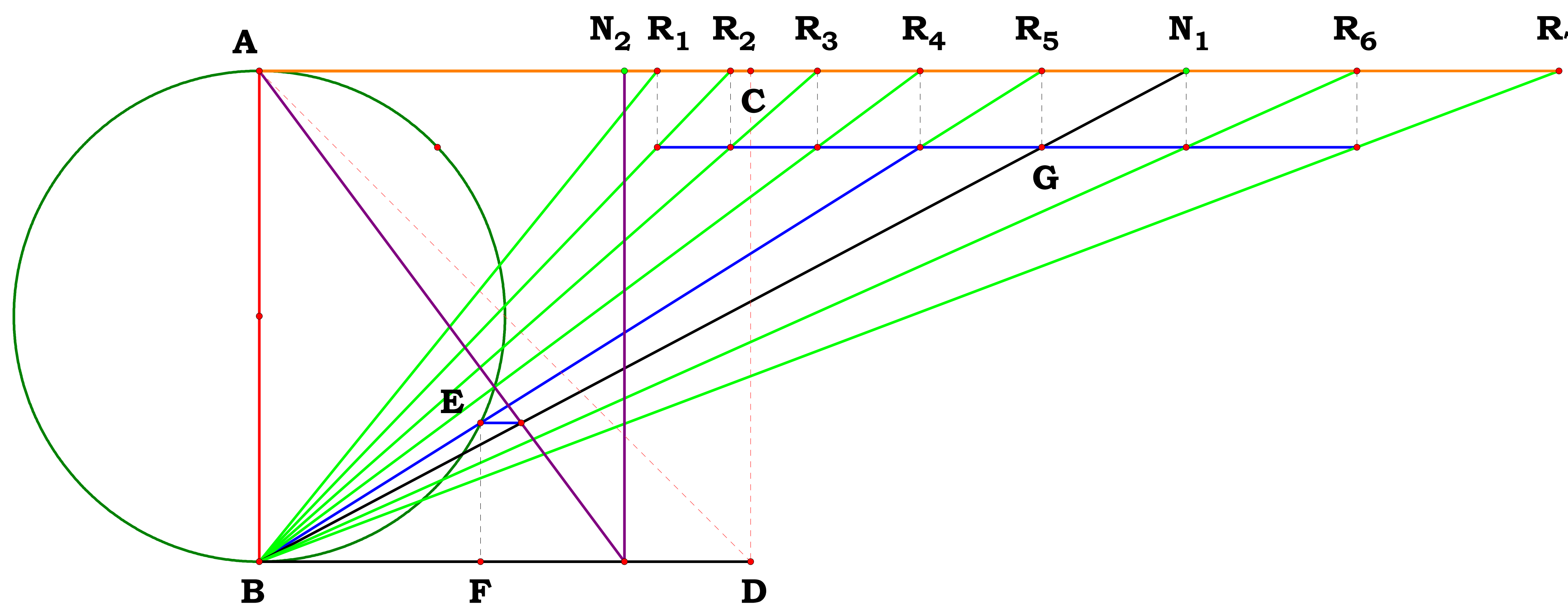
$R_3 = 1.13601$

$R_4 = 1.34531$

$R_5 = 1.59316$

$R_6 = 2.23428$

$R_7 = 2.64591$



Circle

Show Lines

0

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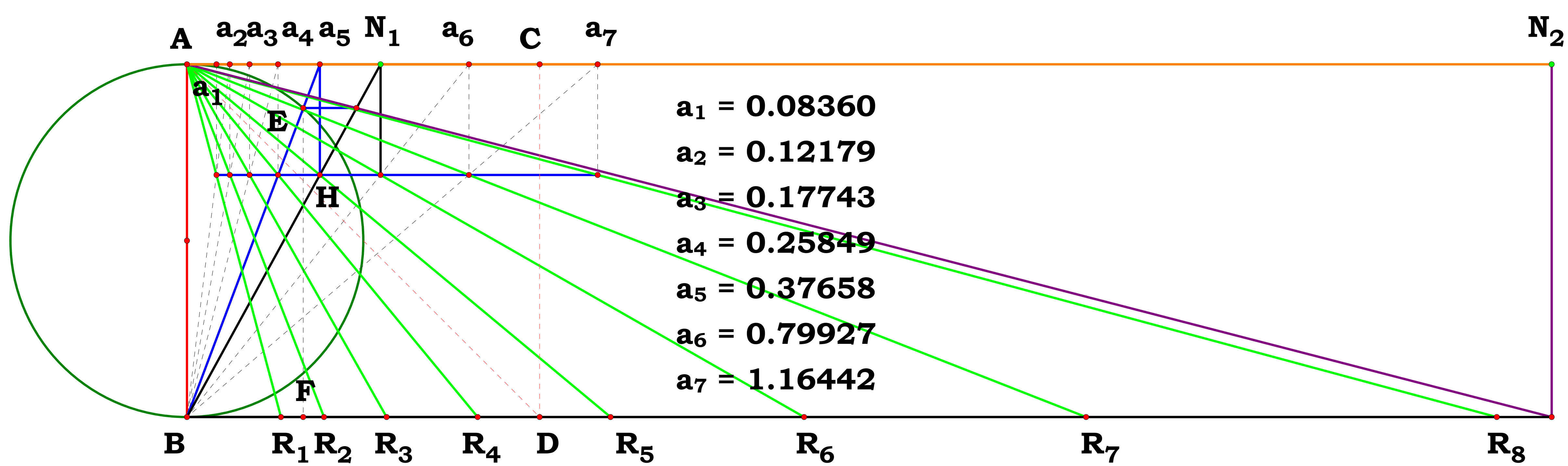
1

$N_1 = 0.54862$
$N_2 = 3.86863$
$R_1 = 0.26658$
$R_2 = 0.38837$
$R_3 = 0.56580$
$R_4 = 0.82429$
$R_5 = 1.20087$
$R_6 = 1.74950$
$R_7 = 2.54876$
$R_8 = 3.71318$



Circle

Show Lines

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1

N_1 = 3.42768

N_2 = 1.73283

R_1 = 0.35399

R_2 = 0.44663

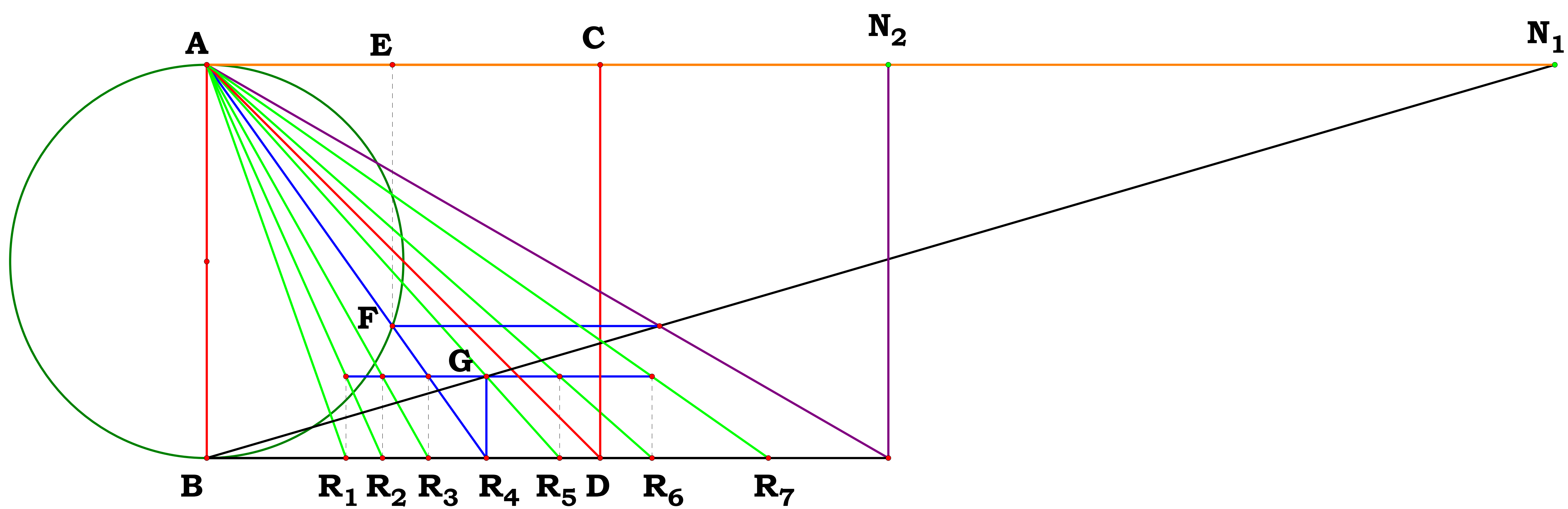
R_3 = 0.56353

R_4 = 0.71101

R_5 = 0.89710

R_6 = 1.13189

R_7 = 1.42814



Circle

Show Lines

0

1

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1

$N_1 = 1.96848$

$N_2 = 0.77822$

$R_1 = 0.42234$

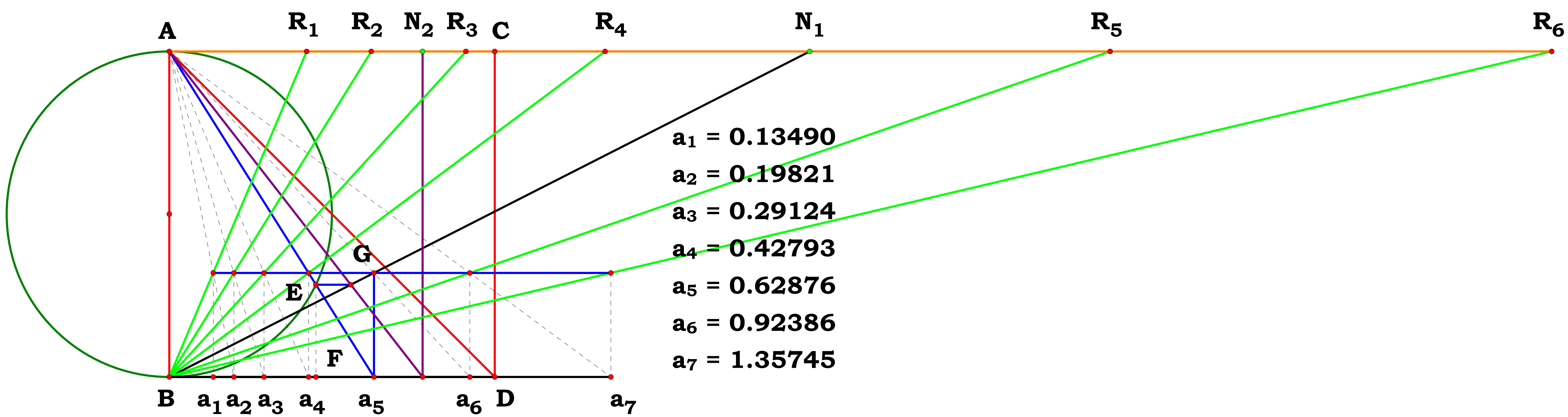
$R_2 = 0.62055$

$R_3 = 0.91179$

$R_4 = 1.33972$

$R_5 = 2.89234$

$R_6 = 4.24978$



$a_1 = 0.13490$

$a_2 = 0.19821$

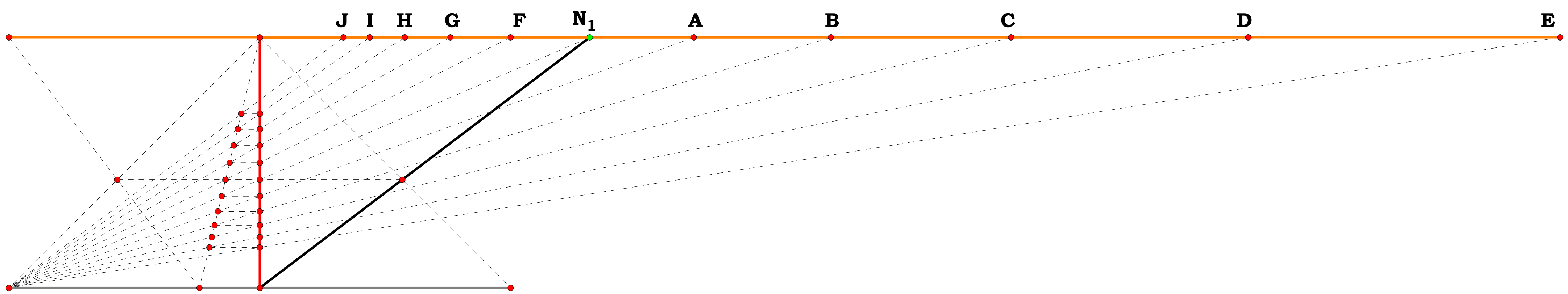
$a_3 = 0.29124$

$a_4 = 0.42793$

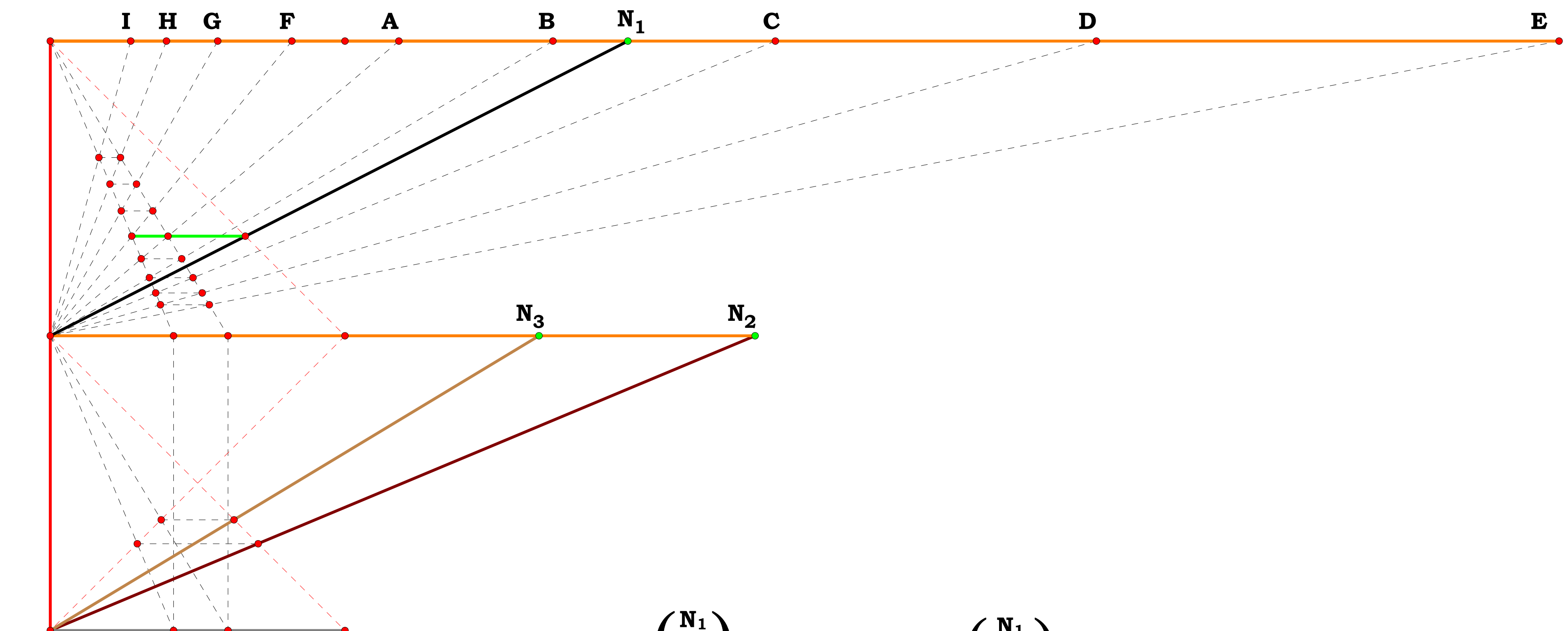
$a_5 = 0.62876$

$a_6 = 0.92386$

$a_7 = 1.35745$



$N_1 = 1.31554$	$A = 1.73065$	$F = 1.00000$	$N_1^2 - A = 0.00000$	$N_1^0 - F = 0.00000$
	$B = 2.27675$	$G = 0.76014$	$N_1^3 - B = 0.00000$	$N_1^{-1} - G = 0.00000$
	$C = 2.99516$	$H = 0.57782$	$N_1^4 - C = 0.00000$	$N_1^{-2} - H = 0.00000$
	$D = 3.94026$	$I = 0.43922$	$N_1^5 - D = 0.00000$	$N_1^{-3} - I = 0.00000$
	$E = 5.18358$	$J = 0.33387$	$N_1^6 - E = 0.00000$	$N_1^{-4} - J = 0.00000$



$N_1 = 1.95987$
$N_2 = 2.39124$
$N_3 = 1.65771$

$A = 1.18227$
$B = 1.70541$
$C = 2.46005$
$D = 3.54859$
$E = 5.11881$

$F = 0.81960$
$G = 0.56819$
$H = 0.39389$
$I = 0.27306$

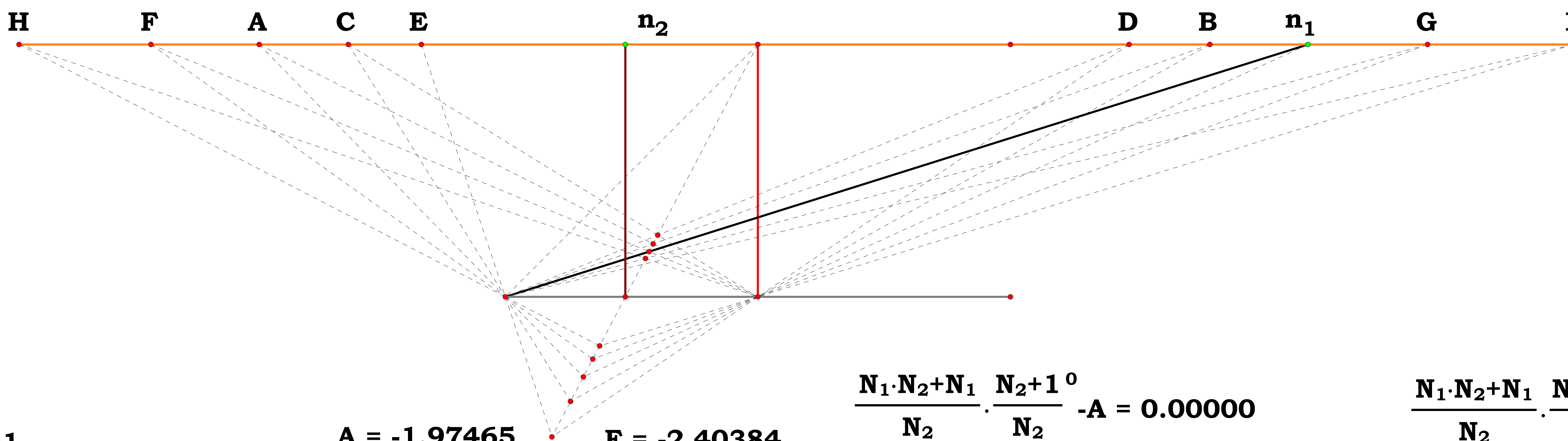
$$\left(\frac{N_1}{N_3}\right)\cdot N_2{}^0 - A = 0.00000 \qquad \left(\frac{N_1}{N_3{}^0}\right)\cdot N_2{}^{-1} - F = 0.00000$$

$$\left(\frac{N_1}{N_3{}^2}\right)\cdot N_2 - B = 0.00000 \qquad \left(\frac{N_1}{N_3{}^{-1}}\right)\cdot N_2{}^{-2} - G = 0.00000$$

$$\left(\frac{N_1}{N_3{}^3}\right)\cdot N_2{}^2 - C = 0.00000 \qquad \left(\frac{N_1}{N_3{}^{-2}}\right)\cdot N_2{}^{-3} - H = 0.00000$$

$$\left(\frac{N_1}{N_3{}^4}\right)\cdot N_2{}^3 - D = 0.00000 \qquad \left(\frac{N_1}{N_3{}^{-3}}\right)\cdot N_2{}^{-4} - I = 0.00000$$

$$\left(\frac{N_1}{N_3{}^5}\right)\cdot N_2{}^4 - E = 0.00000$$



$$\frac{N_2+1}{N_2} = -0.90634$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} = -1.97465$$

$N_1 = 2.17870$

$N_2 = -0.52456$

A = -1.97465

B = 1.78970

C = -1.62208

D = 1.47016

E = -1.33247

F = -2.40384

G = 2.65225

H = -2.92632

I = 3.22872

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{0} - A = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{1} - B = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{2} - C = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{3} - D = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{4} - E = 0.00000$$

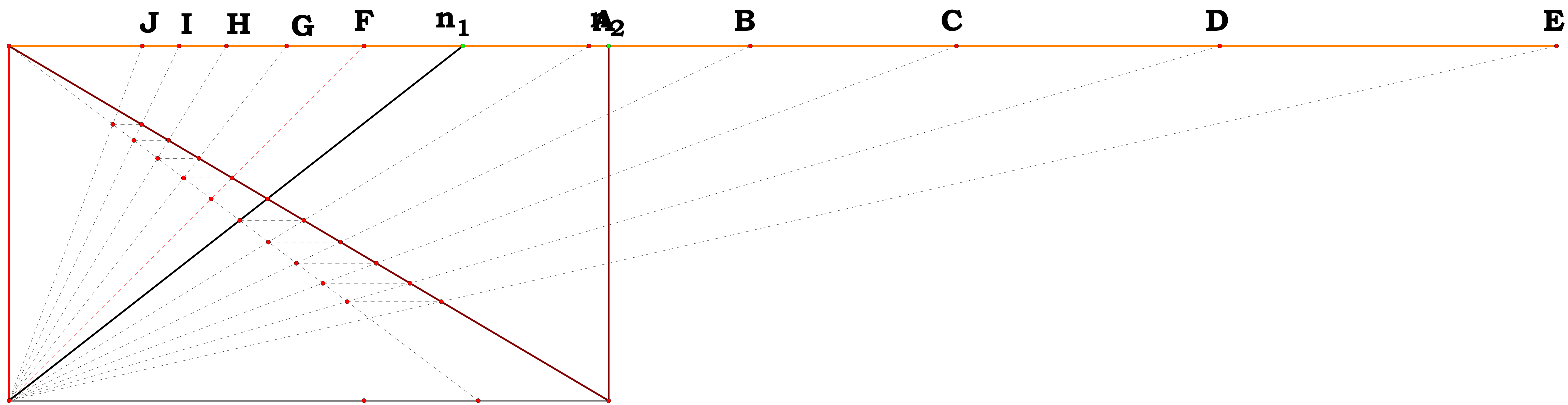
$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{-1} - N_1 = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{-2} - F = 0.00000$$

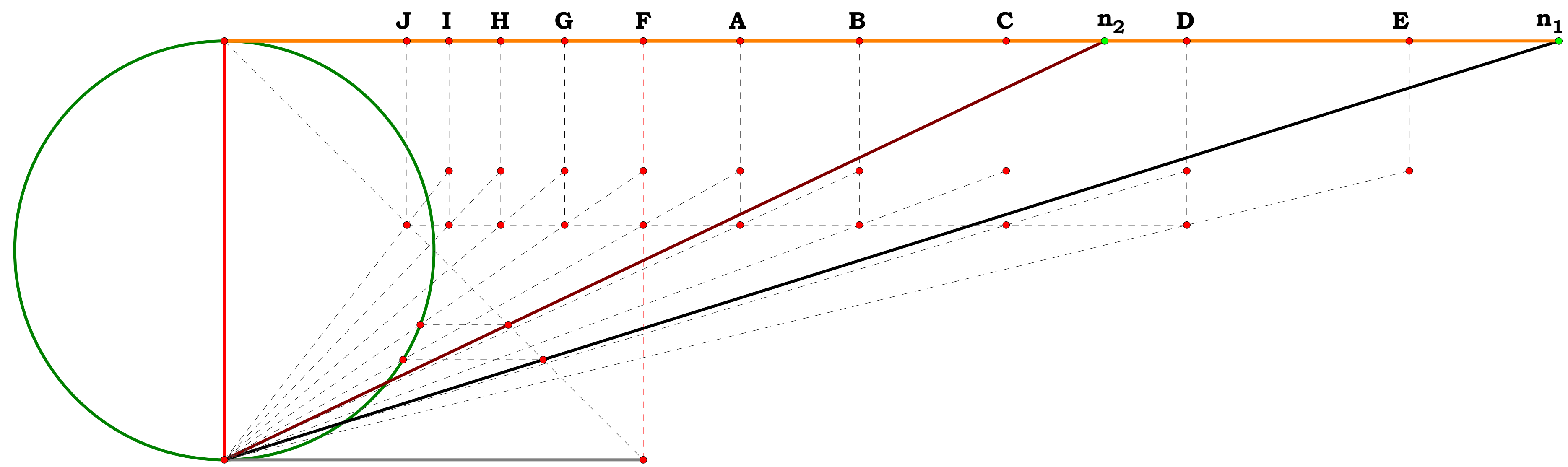
$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{-3} - G = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{-4} - H = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{-5} - I = 0.00000$$



	$A = 1.63353$	$F = 1.00000$	$N_1^2 - A = 0.00000$	$N_1^0 - F = 0.00000$
$N_1 = 1.27809$	$B = 2.08780$	$G = 0.78241$	$N_1^3 - B = 0.00000$	$N_1^{-1} - G = 0.00000$
$N_2 = 1.68896$	$C = 2.66841$	$H = 0.61217$	$N_1^4 - C = 0.00000$	$N_1^{-2} - H = 0.00000$
	$D = 3.41048$	$I = 0.47897$	$N_1^5 - D = 0.00000$	$N_1^{-3} - I = 0.00000$
	$E = 4.35891$	$J = 0.37476$	$N_1^6 - E = 0.00000$	$N_1^{-4} - J = 0.00000$



$$\frac{\sqrt{N_1}}{\sqrt{N_2}} = 1.23112$$

$N_1 = 3.18458$

$N_2 = 2.10112$

A = 1.23112
B = 1.51566
C = 1.86597
D = 2.29723
E = 2.82817

F = 1.00000
G = 0.81227
H = 0.65978
I = 0.53592
J = 0.43531

$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{1} - A = 0.00000$$

$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{2} - B = 0.00000$$

$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{3} - C = 0.00000$$

$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{4} - D = 0.00000$$

$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{5} - E = 0.00000$$

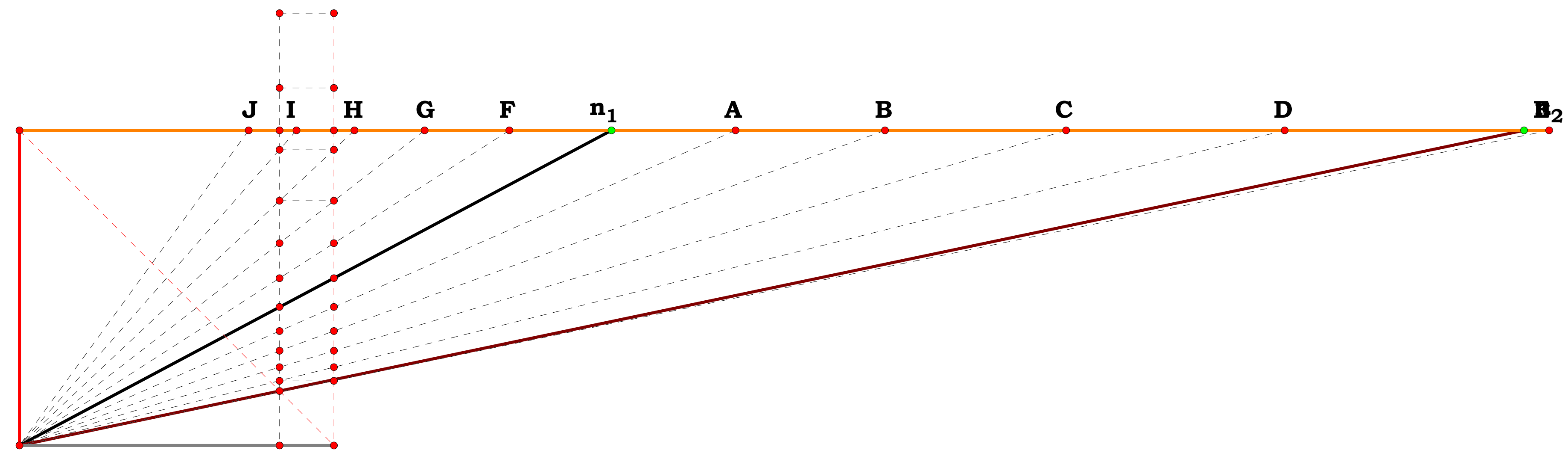
$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{0} - F = 0.00000$$

$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{-1} - G = 0.00000$$

$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{-2} - H = 0.00000$$

$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{-3} - I = 0.00000$$

$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{-4} - J = 0.00000$$



$$\frac{N_1 \cdot N_2 + N_1}{N_2} = 2.27629$$

$$\frac{N_2+1}{N_2} = 1.20903$$

$N_1 = 1.88273$
$N_2 = 4.78390$

A = 2.27629
B = 2.75211
C = 3.32740
D = 4.02294
E = 4.86387

F = 1.55722
G = 1.28799
H = 1.06530
I = 0.88112
J = 0.72878

$$\frac{N_1 \cdot N_2 + N_1}{N_2} \cdot {\frac{N_2+1}{N_2}}^{0} - A = 0.00000$$

$$\frac{N_1 \cdot N_2 + N_1}{N_2} \cdot {\frac{N_2+1}{N_2}}^{1} - B = 0.00000$$

$$\frac{N_1 \cdot N_2 + N_1}{N_2} \cdot {\frac{N_2+1}{N_2}}^{2} - C = 0.00000$$

$$\frac{N_1 \cdot N_2 + N_1}{N_2} \cdot {\frac{N_2+1}{N_2}}^{3} - D = 0.00000$$

$$\frac{N_1 \cdot N_2 + N_1}{N_2} \cdot {\frac{N_2+1}{N_2}}^{4} - E = 0.00000$$

$$\frac{N_1 \cdot N_2 + N_1}{N_2} \cdot {\frac{N_2+1}{N_2}}^{-1} - N_1 = 0.00000$$

$$\frac{N_1 \cdot N_2 + N_1}{N_2} \cdot {\frac{N_2+1}{N_2}}^{-2} - F = 0.00000$$

$$\frac{N_1 \cdot N_2 + N_1}{N_2} \cdot {\frac{N_2+1}{N_2}}^{-3} - G = 0.00000$$

$$\frac{N_1 \cdot N_2 + N_1}{N_2} \cdot {\frac{N_2+1}{N_2}}^{-4} - H = 0.00000$$

$$\frac{N_1 \cdot N_2 + N_1}{N_2} \cdot {\frac{N_2+1}{N_2}}^{-5} - I = 0.00000$$

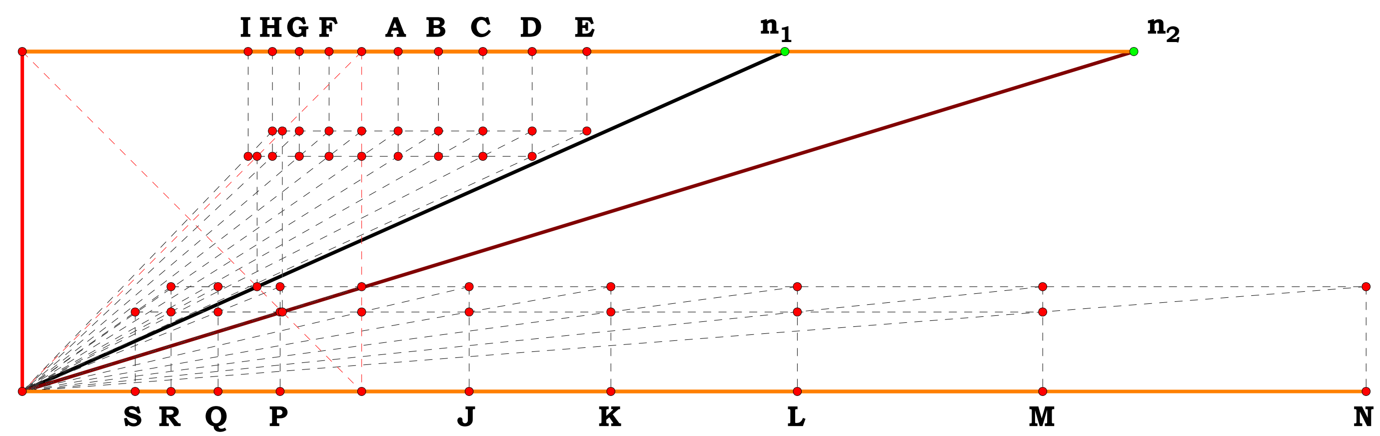
$$\frac{N_1 \cdot N_2 + N_1}{N_2} \cdot {\frac{N_2+1}{N_2}}^{-6} - J = 0.00000$$

$$\frac{N_2 \cdot (N_1+1)}{N_1 \cdot (N_2+1)} = 1.10710$$

A = 1.10710
B = 1.22567
C = 1.35694
D = 1.50227
E = 1.66316
F = 0.90326
G = 0.81588
H = 0.73695
I = 0.66566

$$\frac{N_2 \cdot (N_1+1)}{N_1 \cdot (N_2+1)}^{1} - A = 0.00000$$
$$\frac{N_2 \cdot (N_1+1)}{N_1 \cdot (N_2+1)}^{2} - B = 0.00000$$
$$\frac{N_2 \cdot (N_1+1)}{N_1 \cdot (N_2+1)}^{3} - C = 0.00000$$
$$\frac{N_2 \cdot (N_1+1)}{N_1 \cdot (N_2+1)}^{4} - D = 0.00000$$
$$\frac{N_2 \cdot (N_1+1)}{N_1 \cdot (N_2+1)}^{5} - E = 0.00000$$

$$\frac{N_2 \cdot (N_1+1)}{N_1 \cdot (N_2+1)}^{-1} - F = 0.00000$$
$$\frac{N_2 \cdot (N_1+1)}{N_1 \cdot (N_2+1)}^{-2} - G = 0.00000$$
$$\frac{N_2 \cdot (N_1+1)}{N_1 \cdot (N_2+1)}^{-3} - H = 0.00000$$
$$\frac{N_2 \cdot (N_1+1)}{N_1 \cdot (N_2+1)}^{-4} - I = 0.00000$$



$$\frac{N_2+1}{N_1+1} = 1.31677$$

$N_1 = 2.24615$
$N_2 = 3.27442$

J = 1.31677
K = 1.73387
L = 2.28310
M = 3.00631
N = 3.95861

P = 0.75944
Q = 0.57674
R = 0.43800
S = 0.33263

$$\frac{N_2+1}{N_1+1}^{1} - J = 0.00000$$
$$\frac{N_2+1}{N_1+1}^{2} - K = 0.00000$$
$$\frac{N_2+1}{N_1+1}^{3} - L = 0.00000$$
$$\frac{N_2+1}{N_1+1}^{4} - M = 0.00000$$
$$\frac{N_2+1}{N_1+1}^{5} - N = 0.00000$$

$$\frac{N_2+1}{N_1+1}^{-1} - P = 0.00000$$
$$\frac{N_2+1}{N_1+1}^{-2} - Q = 0.00000$$
$$\frac{N_2+1}{N_1+1}^{-3} - R = 0.00000$$
$$\frac{N_2+1}{N_1+1}^{-4} - S = 0.00000$$

$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2} = 0.83725$$

$$\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1} = 1.12397$$

A = 0.83725
B = 0.94105
C = 1.05771
D = 1.18884
E = 1.33622

F = 0.74490
G = 0.66274
H = 0.58964
I = 0.52461

$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2}\cdot\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1}^{0} - A = 0.00000$$

$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2}\cdot\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1}^{1} - B = 0.00000$$

$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2}\cdot\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1}^{2} - C = 0.00000$$

$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2}\cdot\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1}^{3} - D = 0.00000$$

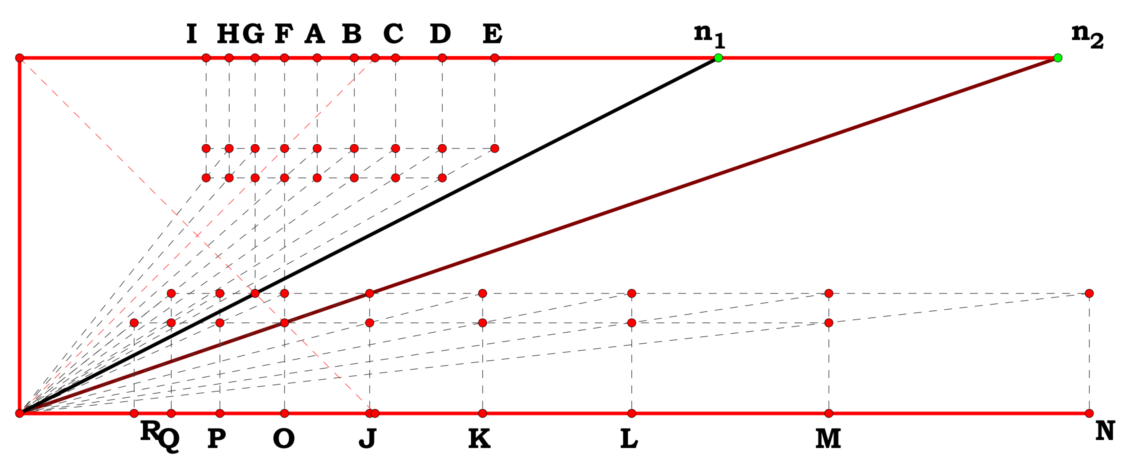
$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2}\cdot\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1}^{4} - E = 0.00000$$

$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2}\cdot\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1}^{-1} - F = 0.00000$$

$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2}\cdot\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1}^{-2} - G = 0.00000$$

$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2}\cdot\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1}^{-3} - H = 0.00000$$

$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2}\cdot\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1}^{-4} - I = 0.00000$$



$$\frac{N_2}{N_1+1} = 0.98482$$

$$\frac{N_2+1}{N_1+1} = 1.32208$$

N_1 = 1.96510
N_2 = 2.92011

J = 0.98482
K = 1.30202
L = 1.72138
M = 2.27580
N = 3.00879

O = 0.74490
P = 0.56343
Q = 0.42617
R = 0.32235

$$\frac{N_2}{N_1+1}\cdot\frac{N_2+1}{N_1+1}^{0} - J = 0.00000$$

$$\frac{N_2}{N_1+1}\cdot\frac{N_2+1}{N_1+1}^{1} - K = 0.00000$$

$$\frac{N_2}{N_1+1}\cdot\frac{N_2+1}{N_1+1}^{2} - L = 0.00000$$

$$\frac{N_2}{N_1+1}\cdot\frac{N_2+1}{N_1+1}^{3} - M = 0.00000$$

$$\frac{N_2}{N_1+1}\cdot\frac{N_2+1}{N_1+1}^{4} - N = 0.00000$$

$$\frac{N_2}{N_1+1}\cdot\frac{N_2+1}{N_1+1}^{-1} - O = 0.00000$$

$$\frac{N_2}{N_1+1}\cdot\frac{N_2+1}{N_1+1}^{-2} - P = 0.00000$$

$$\frac{N_2}{N_1+1}\cdot\frac{N_2+1}{N_1+1}^{-3} - Q = 0.00000$$

$$\frac{N_2}{N_1+1}\cdot\frac{N_2+1}{N_1+1}^{-4} - R = 0.00000$$

B = 1.31080
C = 1.71820
D = 2.25222
E = 2.95221
F = 3.86977
G = 5.07250

$$\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)} = 1.31080 \qquad \left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^1 - B = 0.00000$$

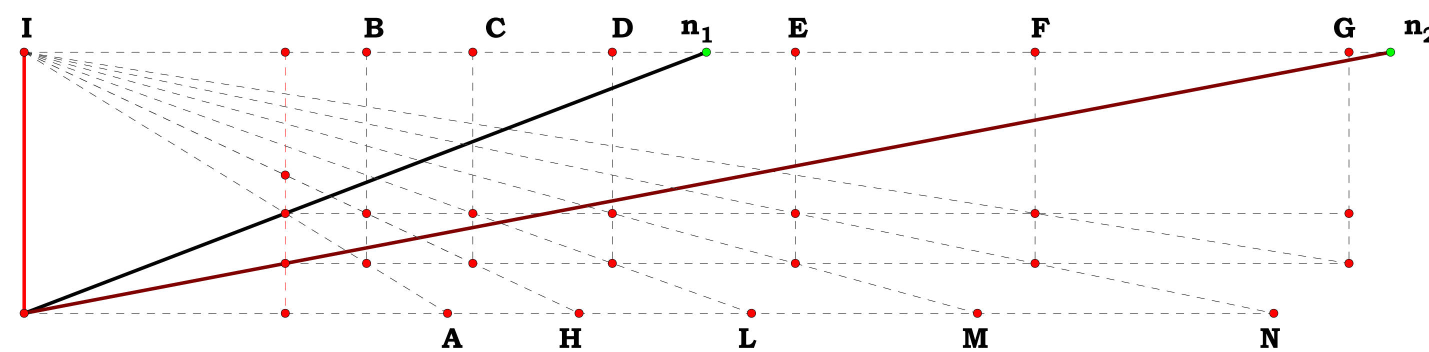
$$\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^2 = 1.71820 \qquad \left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^2 - C = 0.00000$$

$$\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^3 = 2.25222 \qquad \left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^3 - D = 0.00000$$

$$\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^4 = 2.95221 \qquad \left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^4 - E = 0.00000$$

$$\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^5 = 3.86977 \qquad \left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^5 - F = 0.00000$$

$$\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^6 = 5.07250 \qquad \left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^6 - G = 0.00000$$



$$\frac{N_1}{N_1-1} - A = 0.00000$$

$$\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2} = 2.12423$$

N_1 = 2.61146
N_2 = 5.23175

A = 1.62056
H = 2.12423
L = 2.78444
M = 3.64985
N = 4.78423

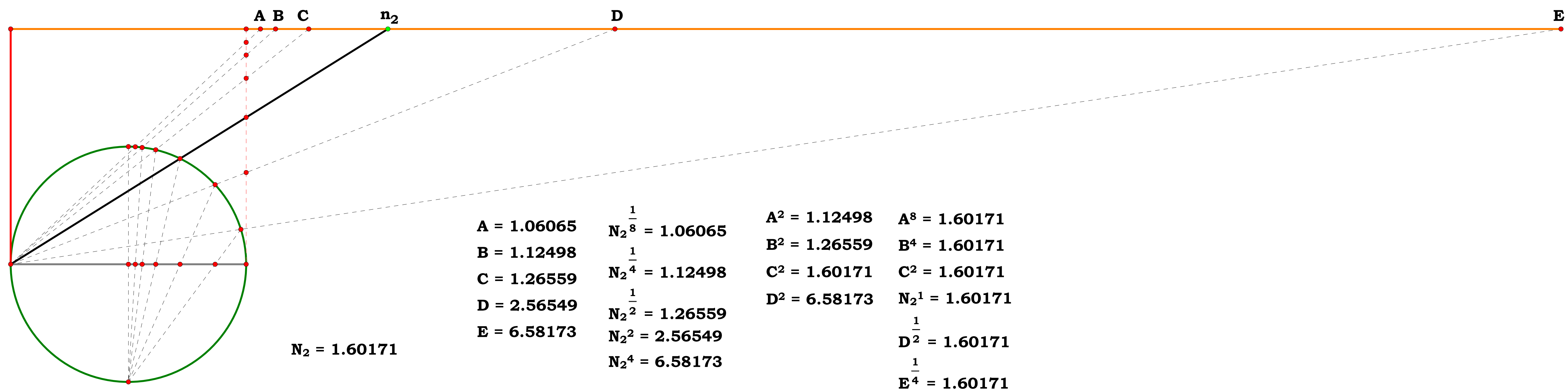
$$\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^{-1} = 1.62056 \qquad \left(\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^{-1}\right) - A = 0.00000$$

$$\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^{0} = 2.12423 \qquad \left(\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^{0}\right) - H = 0.00000$$

$$\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^{1} = 2.78444 \qquad \left(\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^{1}\right) - L = 0.00000$$

$$\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^{2} = 3.64985 \qquad \left(\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^{2}\right) - M = 0.00000$$

$$\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^{3} = 4.78423 \qquad \left(\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^{3}\right) - N = 0.00000$$



$N_2 = 1.60171$

$A = 1.06065$

$B = 1.12498$

$C = 1.26559$

$D = 2.56549$

$E = 6.58173$

$N_2^{\frac{1}{8}} = 1.06065$

$N_2^{\frac{1}{4}} = 1.12498$

$N_2^{\frac{1}{2}} = 1.26559$

$N_2^{2} = 2.56549$

$N_2^{4} = 6.58173$

$A^2 = 1.12498$

$B^2 = 1.26559$

$C^2 = 1.60171$

$D^2 = 6.58173$

$A^8 = 1.60171$

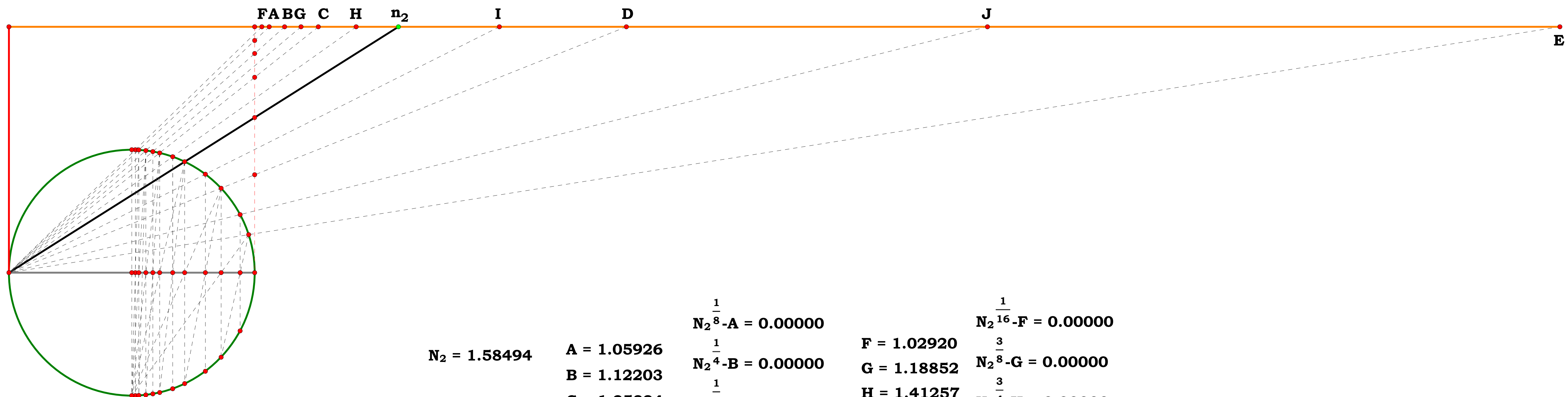
$B^4 = 1.60171$

$C^2 = 1.60171$

$N_2^1 = 1.60171$

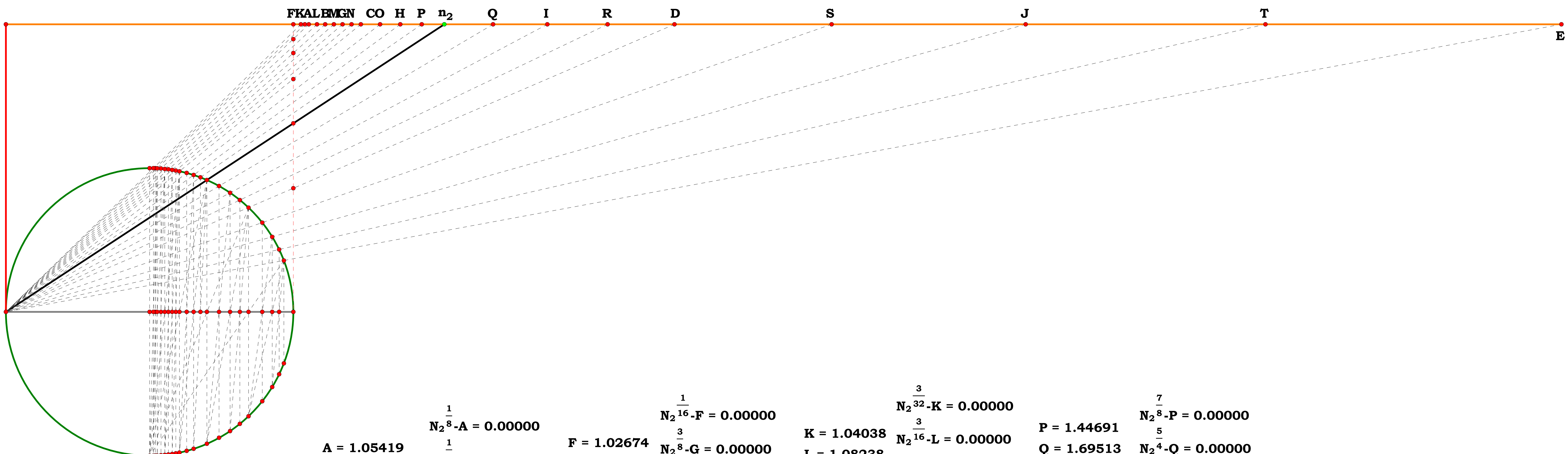
$D^{\frac{1}{2}} = 1.60171$

$E^{\frac{1}{4}} = 1.60171$



$N_2 = 1.58494$

$A = 1.05926$	$N_2^{\frac{1}{8}} - A = 0.00000$	$F = 1.02920$	$N_2^{\frac{1}{16}} - F = 0.00000$
$B = 1.12203$	$N_2^{\frac{1}{4}} - B = 0.00000$	$G = 1.18852$	$N_2^{\frac{3}{8}} - G = 0.00000$
$C = 1.25894$	$N_2^{\frac{1}{2}} - C = 0.00000$	$H = 1.41257$	$N_2^{\frac{3}{4}} - H = 0.00000$
$D = 2.51204$	$N_2^{2} - D = 0.00000$	$I = 1.99535$	$N_2^{\frac{3}{2}} - I = 0.00000$
$E = 6.31034$	$N_2^{4} - E = 0.00000$	$J = 3.98144$	$N_2^{3} - J = 0.00000$



$N_2 = 1.52533$

$A = 1.05419$
$B = 1.11132$
$C = 1.23504$
$D = 2.32662$
$E = 5.41318$

$N_2^{\frac{1}{8}} - A = 0.00000$
$N_2^{\frac{1}{4}} - B = 0.00000$
$N_2^{\frac{1}{2}} - C = 0.00000$
$N_2^{2} - D = 0.00000$
$N_2^{4} - E = 0.00000$

$F = 1.02674$
$G = 1.17155$
$H = 1.37253$
$I = 1.88384$
$J = 3.54886$

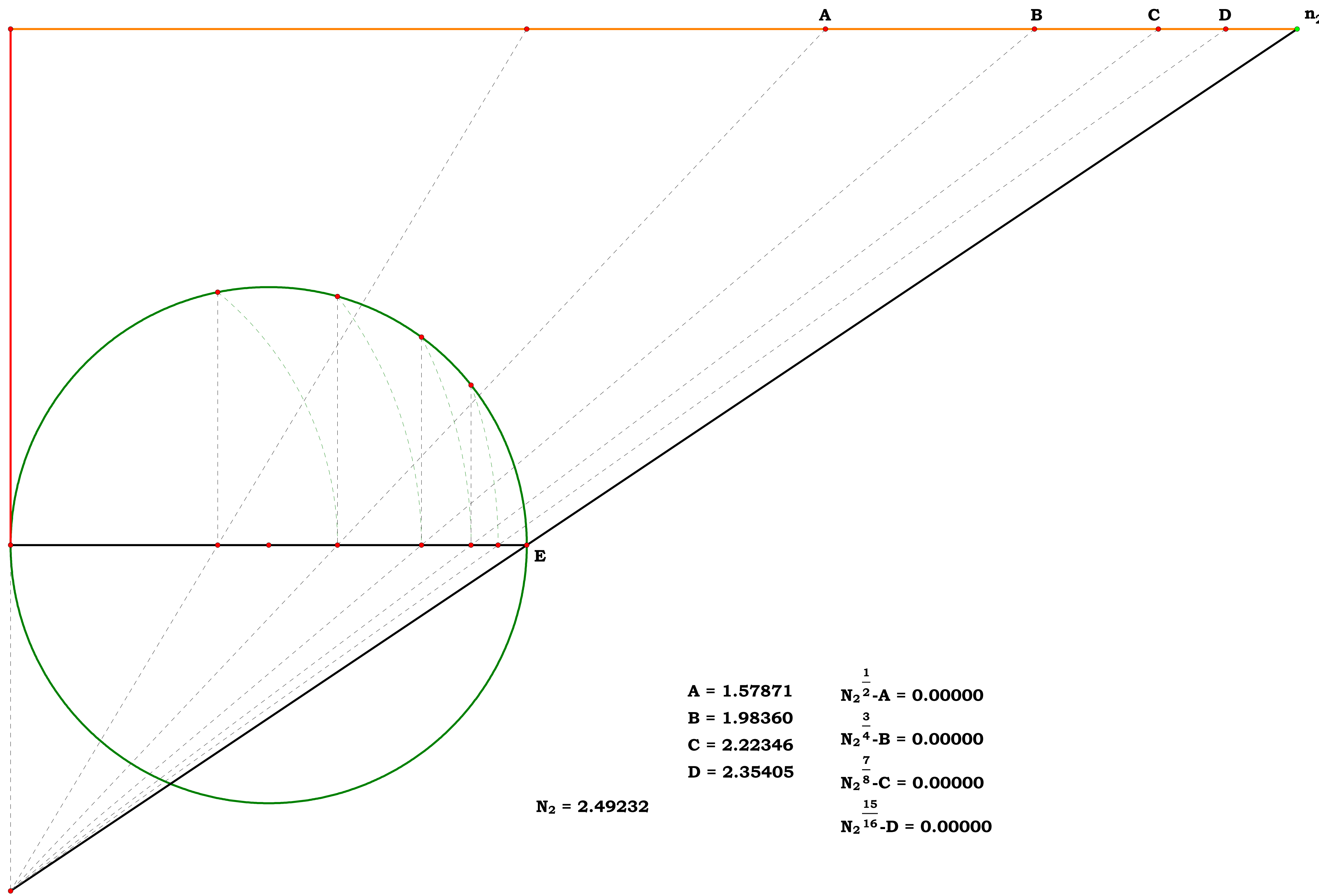
$N_2^{\frac{1}{16}} - F = 0.00000$
$N_2^{\frac{3}{8}} - G = 0.00000$
$N_2^{\frac{3}{4}} - H = 0.00000$
$N_2^{\frac{3}{2}} - I = 0.00000$
$N_2^{3} - J = 0.00000$

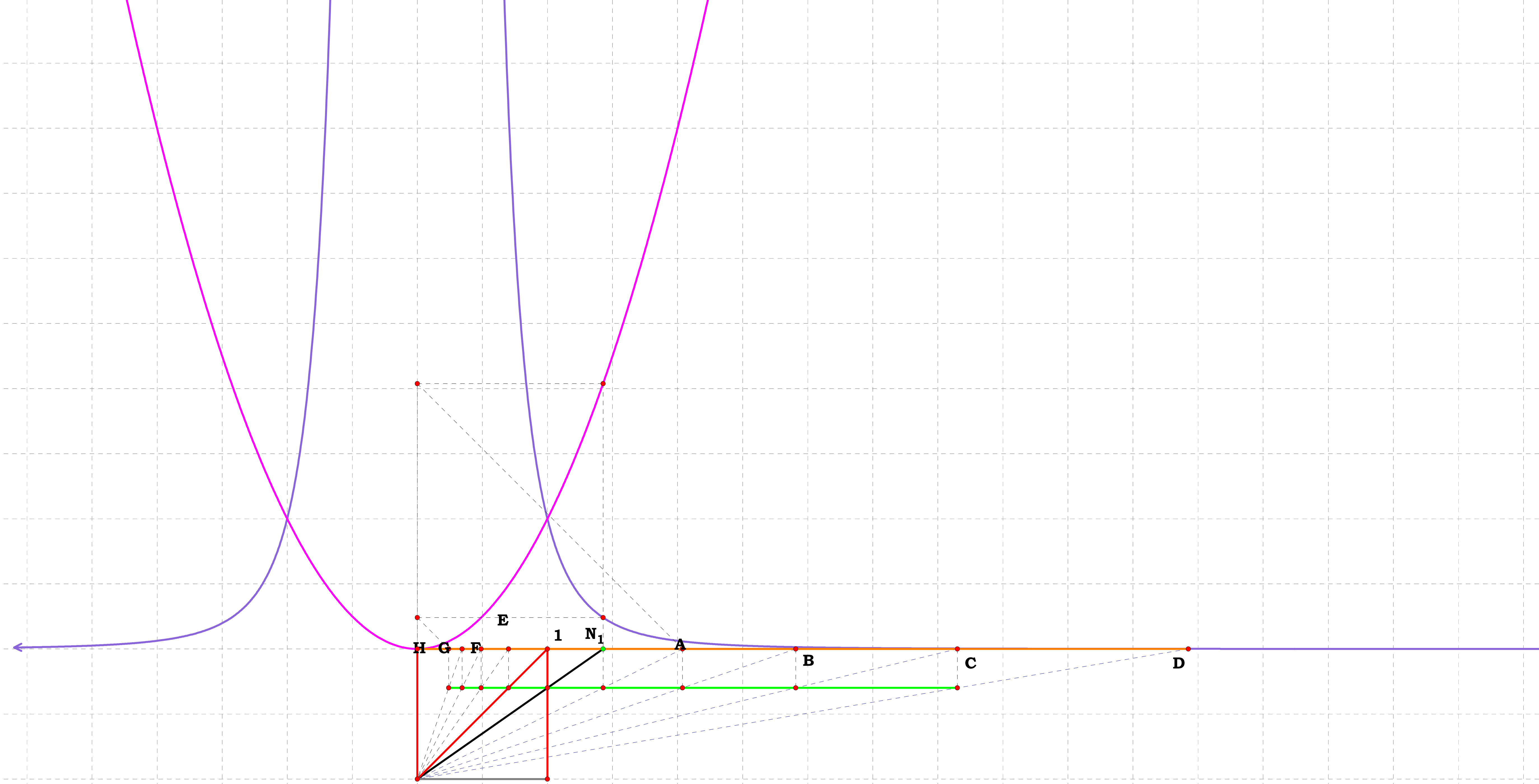
$K = 1.04038$
$L = 1.08238$
$M = 1.14104$
$N = 1.20288$
$O = 1.30197$

$N_2^{\frac{3}{32}} - K = 0.00000$
$N_2^{\frac{3}{16}} - L = 0.00000$
$N_2^{\frac{5}{16}} - M = 0.00000$
$N_2^{\frac{7}{16}} - N = 0.00000$
$N_2^{\frac{5}{8}} - O = 0.00000$

$P = 1.44691$
$Q = 1.69513$
$R = 2.09356$
$S = 2.87348$
$T = 4.38299$

$N_2^{\frac{7}{8}} - P = 0.00000$
$N_2^{\frac{5}{4}} - Q = 0.00000$
$N_2^{\frac{7}{4}} - R = 0.00000$
$N_2^{\frac{5}{2}} - S = 0.00000$
$N_2^{\frac{7}{2}} - T = 0.00000$


A
B
C
D
n_2
E
A = 1.57871
B = 1.98360
C = 2.22346
D = 2.35405
$N_2 = 2.49232$
$N_2^{\frac{1}{2}}-A = 0.00000$
$N_2^{\frac{3}{4}}-B = 0.00000$
$N_2^{\frac{7}{8}}-C = 0.00000$
$N_2^{\frac{15}{16}}-D = 0.00000$



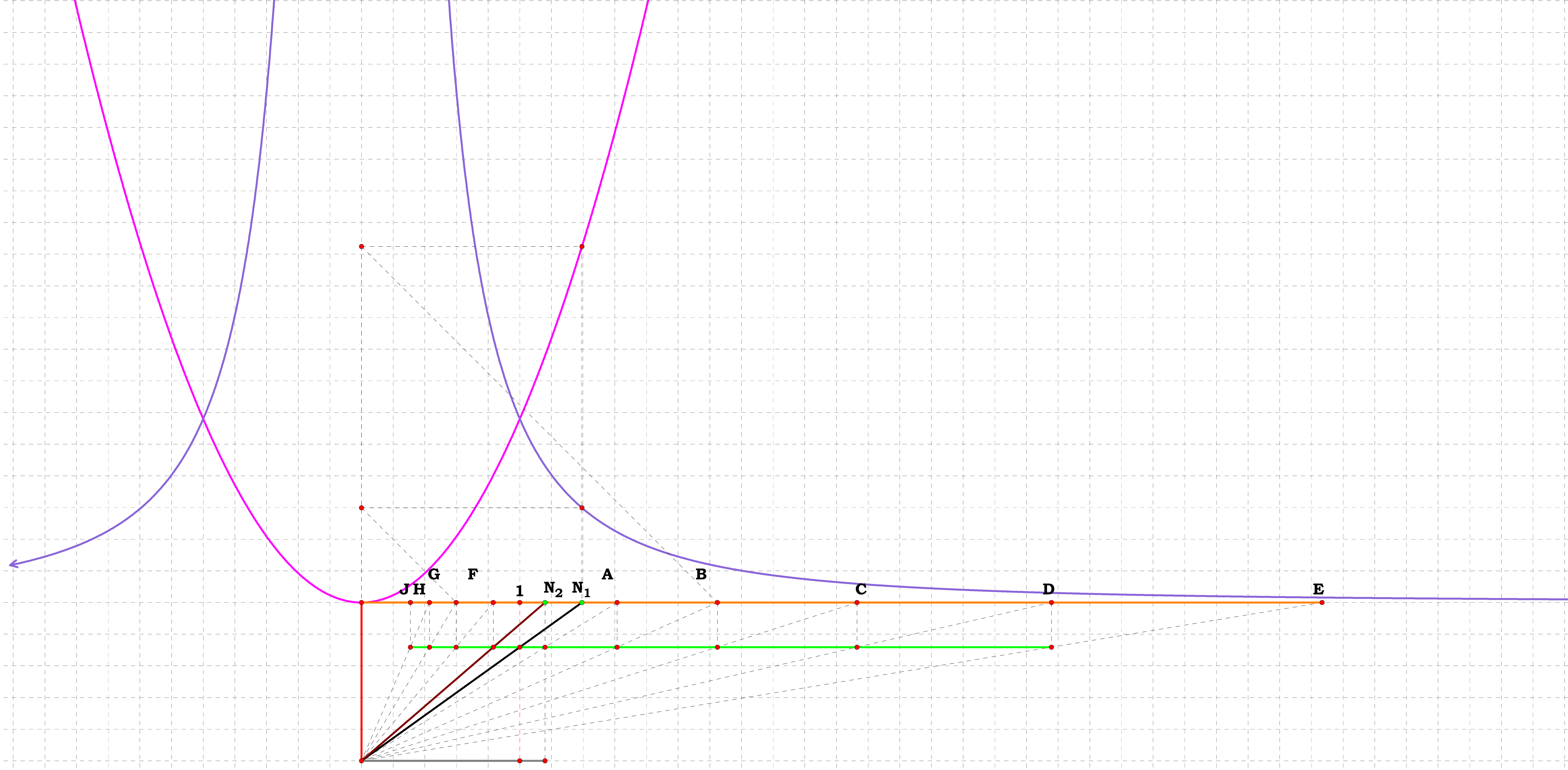
$N_1 = 1.42736$

A = 2.03735
B = 2.90803
C = 4.15079
D = 5.92467
E = 0.70060
F = 0.49083
G = 0.34388
H = 0.24092

N_1^2-A = 0.00000
N_1^3-B = 0.00000
N_1^4-C = 0.00000
N_1^5-D = 0.00000

N_1^{-1}-E = 0.00000
N_1^{-2}-F = 0.00000
N_1^{-3}-G = 0.00000
N_1^{-4}-H = 0.00000

Plate 1



$N_1 = 1.39234$

$N_2 = 1.15968$

$A = 1.61466$

$B = 2.24815$

$C = 3.13018$

$D = 4.35827$

$E = 6.06818$

$F = 0.83290$

$G = 0.59820$

$H = 0.42964$

$J = 0.30857$

$N_2 \cdot N_1^{1} - A = 0.00000$

$N_2 \cdot N_1^{2} - B = 0.00000$

$N_2 \cdot N_1^{3} - C = 0.00000$

$N_2 \cdot N_1^{4} - D = 0.00000$

$N_2 \cdot N_1^{5} - E = 0.00000$

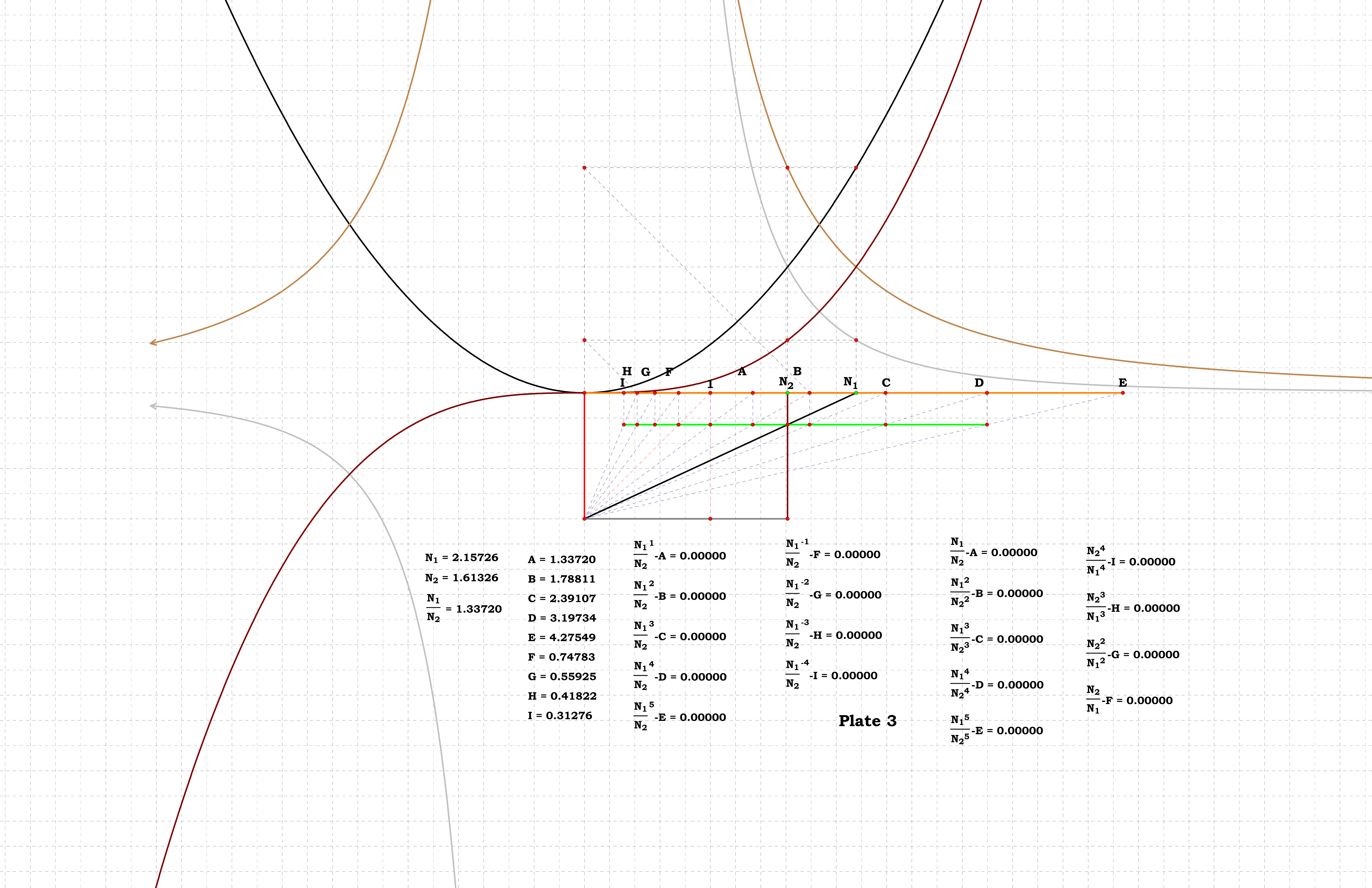
$N_2 \cdot N_1^{-1} - F = 0.00000$

$N_2 \cdot N_1^{-2} - G = 0.00000$

$N_2 \cdot N_1^{-3} - H = 0.00000$

$N_2 \cdot N_1^{-4} - J = 0.00000$

Plate 2



$N_1 = 2.15726$

$N_2 = 1.61326$

$\frac{N_1}{N_2} = 1.33720$

A = 1.33720
B = 1.78811
C = 2.39107
D = 3.19734
E = 4.27549
F = 0.74783
G = 0.55925
H = 0.41822
I = 0.31276

$\frac{N_1{}^1}{N_2} - A = 0.00000$

$\frac{N_1{}^2}{N_2} - B = 0.00000$

$\frac{N_1{}^3}{N_2} - C = 0.00000$

$\frac{N_1{}^4}{N_2} - D = 0.00000$

$\frac{N_1{}^5}{N_2} - E = 0.00000$

$\frac{N_1{}^{-1}}{N_2} - F = 0.00000$

$\frac{N_1{}^{-2}}{N_2} - G = 0.00000$

$\frac{N_1{}^{-3}}{N_2} - H = 0.00000$

$\frac{N_1{}^{-4}}{N_2} - I = 0.00000$

$\frac{N_1}{N_2} - A = 0.00000$

$\frac{N_1^2}{N_2^2} - B = 0.00000$

$\frac{N_1^3}{N_2^3} - C = 0.00000$

$\frac{N_1^4}{N_2^4} - D = 0.00000$

$\frac{N_1^5}{N_2^5} - E = 0.00000$

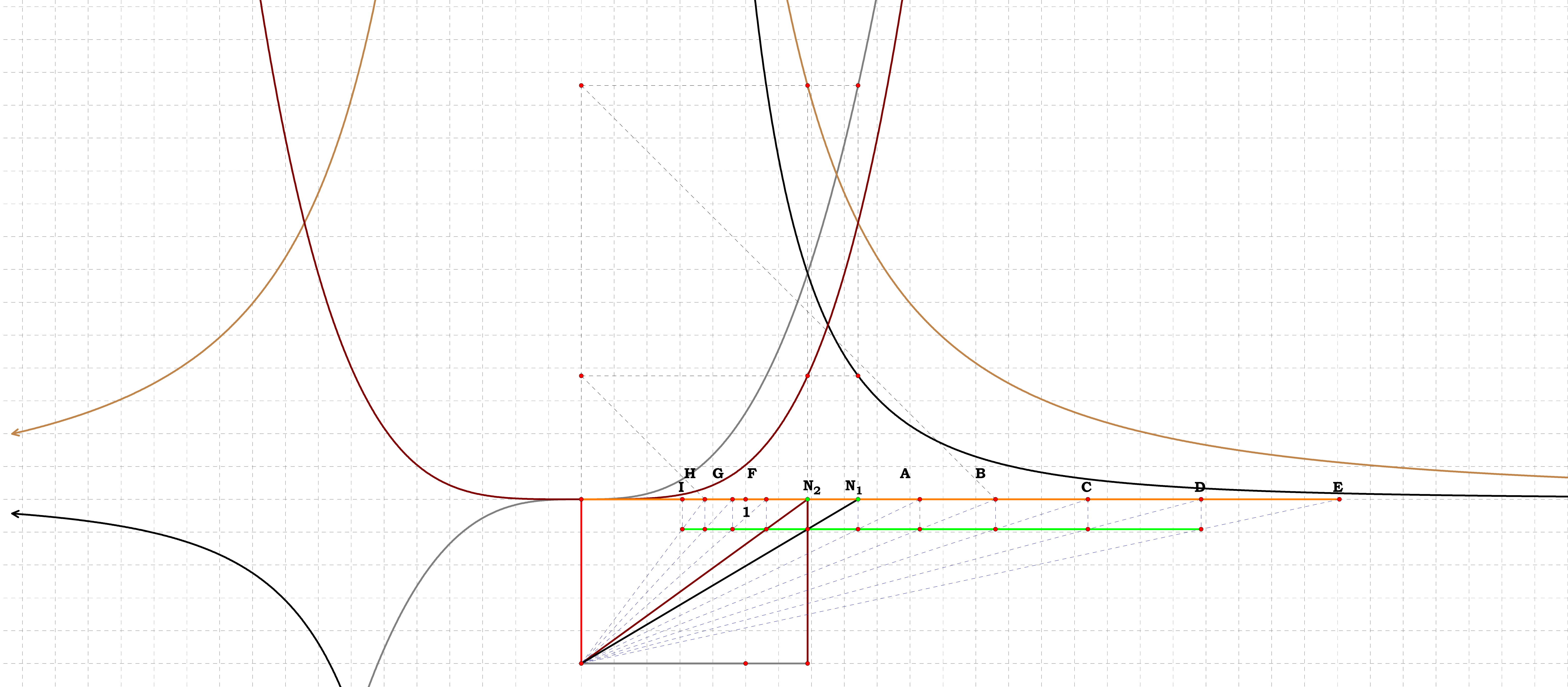
$\frac{N_2^4}{N_1^4} - I = 0.00000$

$\frac{N_2^3}{N_1^3} - H = 0.00000$

$\frac{N_2^2}{N_1^2} - G = 0.00000$

$\frac{N_2}{N_1} - F = 0.00000$

Plate 3



$N_1 = 1.68394$

$N_2 = 1.37660$

$\frac{N_1}{N_2} = 1.22326$

A = 2.05989
B = 2.51977
C = 3.08233
D = 3.77048
E = 4.61226
F = 1.12536
G = 0.91997
H = 0.75207
I = 0.61481

$N_1 \cdot \frac{N_1^{\,1}}{N_2} - A = 0.00000$

$N_1 \cdot \frac{N_1^{\,2}}{N_2} - B = 0.00000$

$N_1 \cdot \frac{N_1^{\,3}}{N_2} - C = 0.00000$

$N_1 \cdot \frac{N_1^{\,4}}{N_2} - D = 0.00000$

$N_1 \cdot \frac{N_1^{\,5}}{N_2} - E = 0.00000$

$N_1 \cdot \frac{N_1^{\,-1}}{N_2} - N_2 = 0.00000$

$N_1 \cdot \frac{N_1^{\,-2}}{N_2} - F = 0.00000$

$N_1 \cdot \frac{N_1^{\,-3}}{N_2} - G = 0.00000$

$N_1 \cdot \frac{N_1^{\,-4}}{N_2} - H = 0.00000$

$N_1 \cdot \frac{N_1^{\,-5}}{N_2} - I = 0.00000$

$\frac{N_1^2}{N_2} - A = 0.00000$

$\frac{N_1^3}{N_2^2} - B = 0.00000$

$\frac{N_1^4}{N_2^3} - C = 0.00000$

$\frac{N_1^5}{N_2^4} - D = 0.00000$

$\frac{N_1^6}{N_2^5} - E = 0.00000$

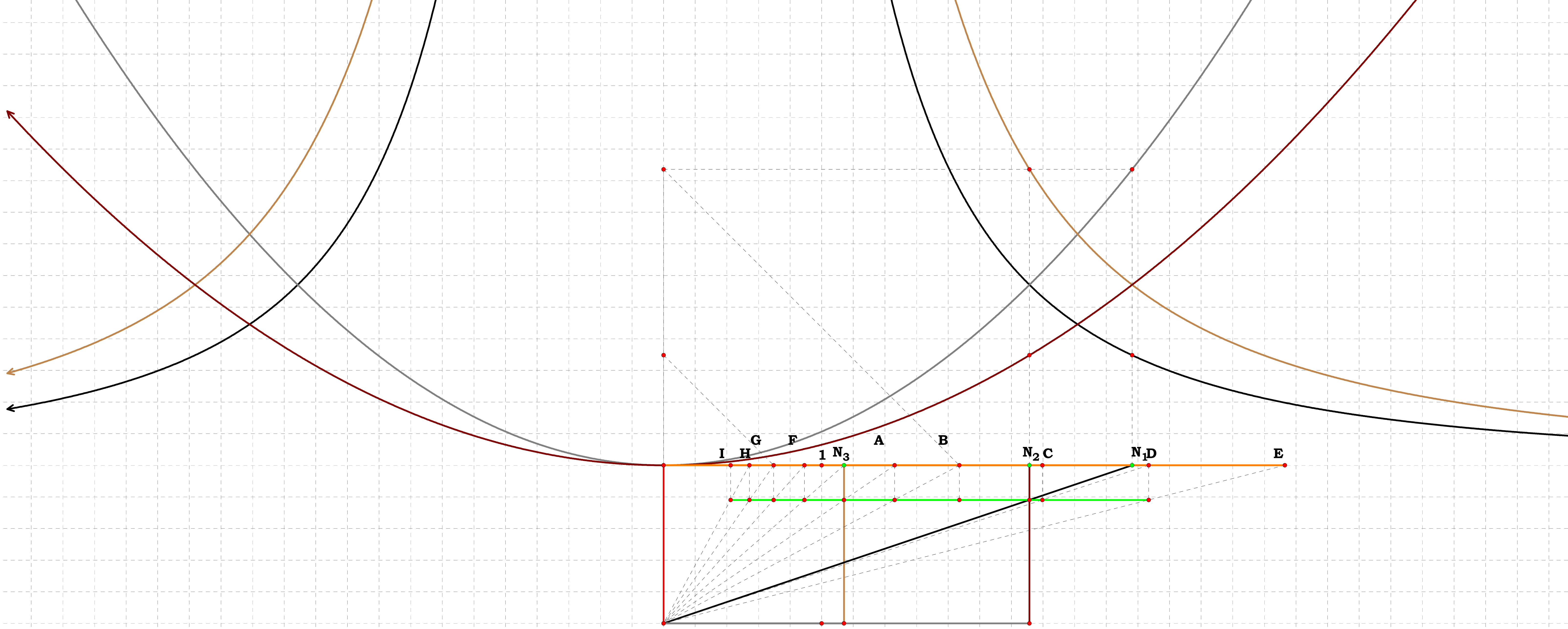
$\frac{N_2^5}{N_1^4} - I = 0.00000$

$\frac{N_2^4}{N_1^3} - H = 0.00000$

$\frac{N_2^3}{N_1^2} - G = 0.00000$

$\frac{N_2^2}{N_1} - F = 0.00000$

Plate 4



$N_1 = 2.96382$

$N_2 = 2.31441$

$N_3 = 1.14115$

$\frac{N_1}{N_2} = 1.28059$

A = 1.46135
B = 1.87140
C = 2.39649
D = 3.06893
E = 3.93005
F = 0.89111
G = 0.69586
H = 0.54339
I = 0.42433

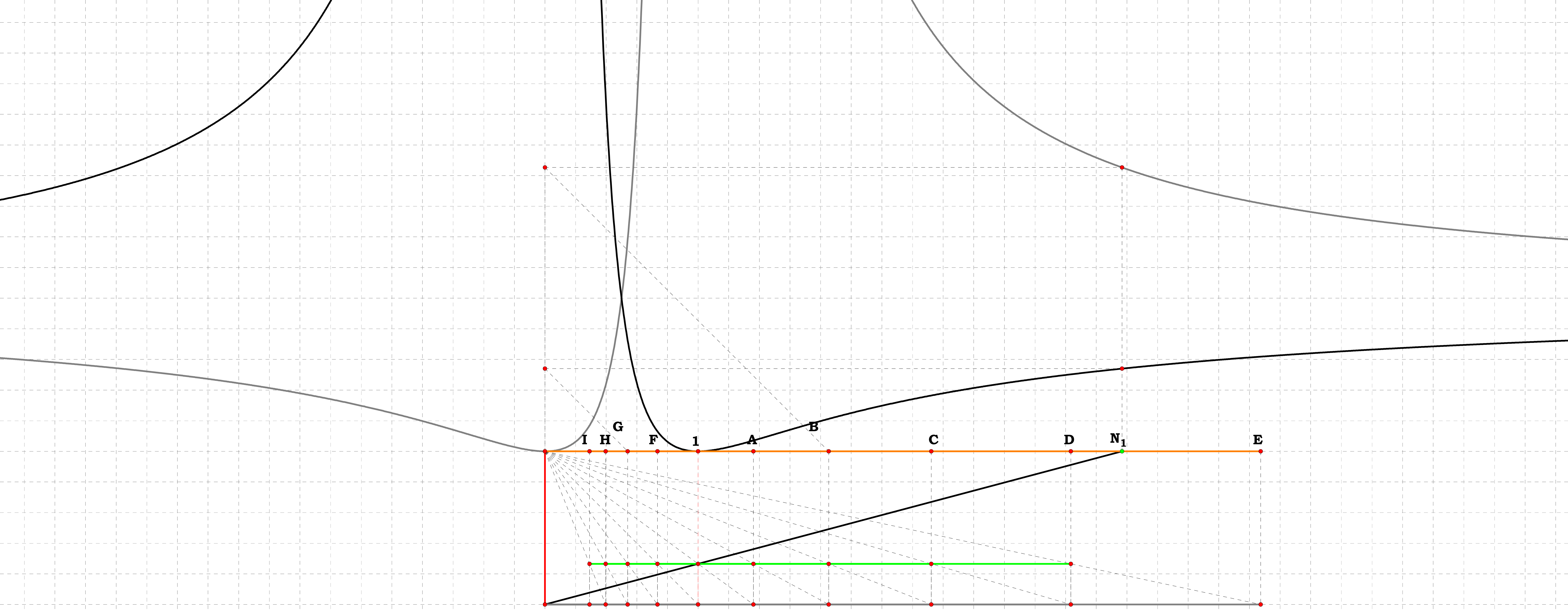
$$N_3 \cdot \frac{N_1}{N_2}^{1} - A = 0.00000$$
$$N_3 \cdot \frac{N_1}{N_2}^{2} - B = 0.00000$$
$$N_3 \cdot \frac{N_1}{N_2}^{3} - C = 0.00000$$
$$N_3 \cdot \frac{N_1}{N_2}^{4} - D = 0.00000$$
$$N_3 \cdot \frac{N_1}{N_2}^{5} - E = 0.00000$$

$$N_3 \cdot \frac{N_1}{N_2}^{-1} - F = 0.00000$$
$$N_3 \cdot \frac{N_1}{N_2}^{-2} - G = 0.00000$$
$$N_3 \cdot \frac{N_1}{N_2}^{-3} - H = 0.00000$$
$$N_3 \cdot \frac{N_1}{N_2}^{-4} - I = 0.00000$$

Plate 5

$$\frac{N_1 \cdot N_3}{N_2} - A = 0.00000$$
$$\frac{N_1^{2} \cdot N_3}{N_2^{2}} - B = 0.00000$$
$$\frac{N_1^{3} \cdot N_3}{N_2^{3}} - C = 0.00000$$
$$\frac{N_1^{4} \cdot N_3}{N_2^{4}} - D = 0.00000$$
$$\frac{N_1^{5} \cdot N_3}{N_2^{5}} - E = 0.00000$$

$$\frac{N_2^{4} \cdot N_3}{N_1^{4}} - I = 0.00000$$
$$\frac{N_2^{3} \cdot N_3}{N_1^{3}} - H = 0.00000$$
$$\frac{N_2^{2} \cdot N_3}{N_1^{2}} - G = 0.00000$$
$$\frac{N_2 \cdot N_3}{N_1} - F = 0.00000$$



$N_1 = 3.76827$

$\frac{N_1}{N_1-1} = 1.36124$

A = 1.36124
B = 1.85297
C = 2.52232
D = 3.43348
E = 4.67378
F = 0.73463
G = 0.53968
H = 0.39646
I = 0.29125

$\left(\frac{N_1}{N_1-1}\right)^{1} - A = 0.00000$

$\left(\frac{N_1}{N_1-1}\right)^{2} - B = 0.00000$

$\left(\frac{N_1}{N_1-1}\right)^{3} - C = 0.00000$

$\left(\frac{N_1}{N_1-1}\right)^{4} - D = 0.00000$

$\left(\frac{N_1}{N_1-1}\right)^{5} - E = 0.00000$

$\left(\frac{N_1}{N_1-1}\right)^{-1} - F = 0.00000$

$\left(\frac{N_1}{N_1-1}\right)^{-2} - G = 0.00000$

$\left(\frac{N_1}{N_1-1}\right)^{-3} - H = 0.00000$

$\left(\frac{N_1}{N_1-1}\right)^{-4} - I = 0.00000$

$\frac{N_1}{N_1-1} - A = 0.00000$

$\frac{N_1^2}{(N_1^2-2\cdot N_1)+1} - B = 0.00000$

$\frac{N_1^3}{((N_1^3-3\cdot N_1^2)+3\cdot N_1)-1} - C = 0.00000$

$\frac{N_1^4}{(((N_1^4-4\cdot N_1^3)+6\cdot N_1^2)-4\cdot N_1)+1} - D = 0.00000$

$\frac{N_1^5}{((((N_1^5-5\cdot N_1^4)+10\cdot N_1^3)-10\cdot N_1^2)+5\cdot N_1)-1} - E = 0.00000$

$\frac{(((N_1^4-4\cdot N_1^3)+6\cdot N_1^2)-4\cdot N_1)+1}{N_1^4} - I = 0.00000$

$\frac{((N_1^3-3\cdot N_1^2)+3\cdot N_1)-1}{N_1^3} - H = 0.00000$

$\frac{(N_1^2-2\cdot N_1)+1}{N_1^2} - G = 0.00000$

$\frac{N_1-1}{N_1} - F = 0.00000$

Plate 6

$N_1 = 3.11876$

$N_2 = 1.08464$

$\frac{N_1}{N_1-1} = 1.47197$

A = 1.59656

B = 2.35009

C = 3.45928

D = 5.09196

E = 7.49523

F = 0.73686

G = 0.50059

H = 0.34008

I = 0.23104

$$N_2\cdot\frac{N_1}{N_1-1}^{1}-A = 0.00000$$

$$N_2\cdot\frac{N_1}{N_1-1}^{2}-B = 0.00000$$

$$N_2\cdot\frac{N_1}{N_1-1}^{3}-C = 0.00000$$

$$N_2\cdot\frac{N_1}{N_1-1}^{4}-D = 0.00000$$

$$N_2\cdot\frac{N_1}{N_1-1}^{5}-E = 0.00000$$

$$N_2\cdot\frac{N_1}{N_1-1}^{-1}-F = 0.00000$$

$$N_2\cdot\frac{N_1}{N_1-1}^{-2}-G = 0.00000$$

$$N_2\cdot\frac{N_1}{N_1-1}^{-3}-H = 0.00000$$

$$N_2\cdot\frac{N_1}{N_1-1}^{-4}-I = 0.00000$$

$$\frac{N_1\cdot N_2}{N_1-1}-A = 0.00000$$

$$\frac{N_1{}^2\cdot N_2}{(N_1{}^2-2\cdot N_1)+1}-B = 0.00000$$

$$\frac{N_1{}^3\cdot N_2}{((N_1{}^3-3\cdot N_1{}^2)+3\cdot N_1)-1}-C = 0.00000$$

$$\frac{N_1{}^4\cdot N_2}{(((N_1{}^4-4\cdot N_1{}^3)+6\cdot N_1{}^2)-4\cdot N_1)+1}-D = 0.00000$$

$$\frac{N_1{}^5\cdot N_2}{((((N_1{}^5-5\cdot N_1{}^4)+10\cdot N_1{}^3)-10\cdot N_1{}^2)+5\cdot N_1)-1}-E = 0.00000$$

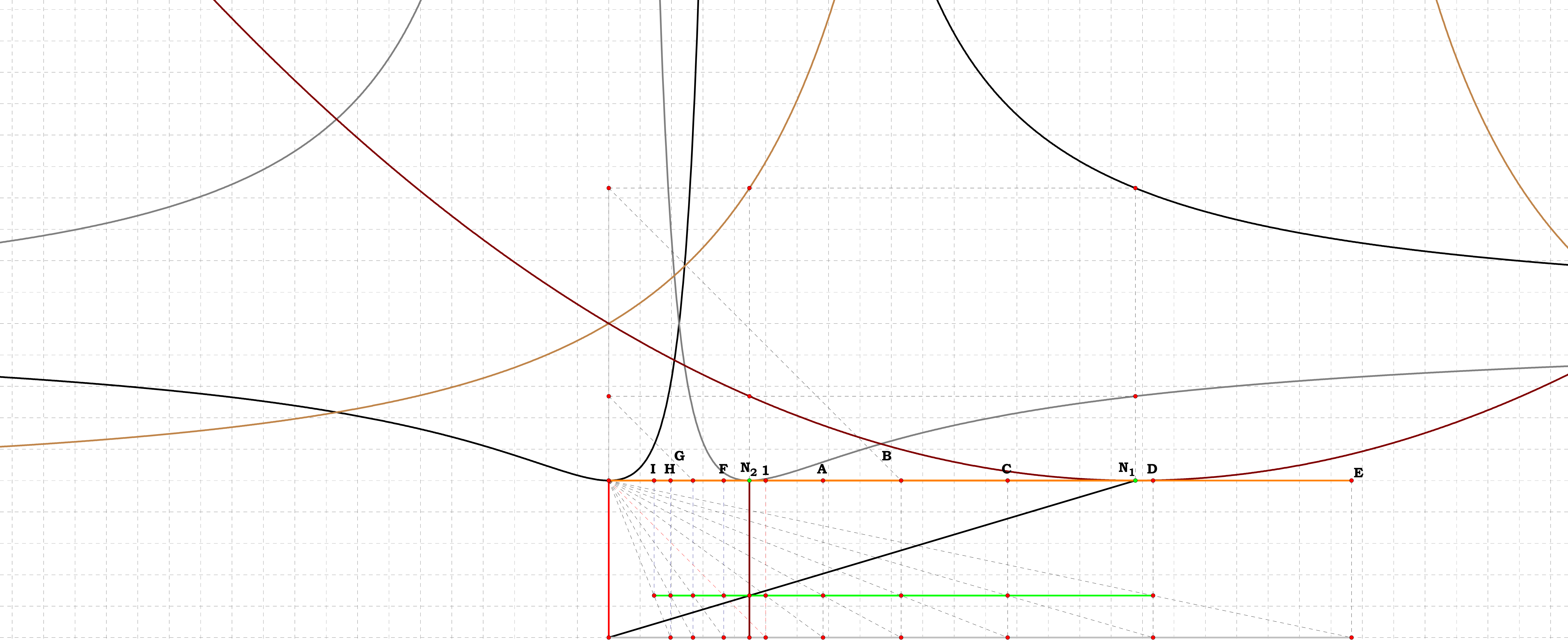
$$\frac{(((N_1{}^4\cdot N_2-4\cdot N_1{}^3\cdot N_2)+6\cdot N_1{}^2\cdot N_2)-4\cdot N_1\cdot N_2)+N_2}{N_1{}^4}-I = 0.00000$$

$$\frac{((N_1{}^3\cdot N_2-3\cdot N_1{}^2\cdot N_2)+3\cdot N_1\cdot N_2)-N_2}{N_1{}^3}-H = 0.00000$$

$$\frac{(N_1{}^2\cdot N_2-2\cdot N_1\cdot N_2)+N_2}{N_1{}^2}-G = 0.00000$$

$$\frac{N_1\cdot N_2-N_2}{N_1}-F = 0.00000$$

Plate 7



$N_1 = 3.35471$

$N_2 = 0.89626$

$\dfrac{N_1}{N_1 - N_2} = 1.36456$

A = 1.36456
B = 1.86204
C = 2.54087
D = 3.46718
E = 4.73120
F = 0.73283
G = 0.53705
H = 0.39357
I = 0.28842

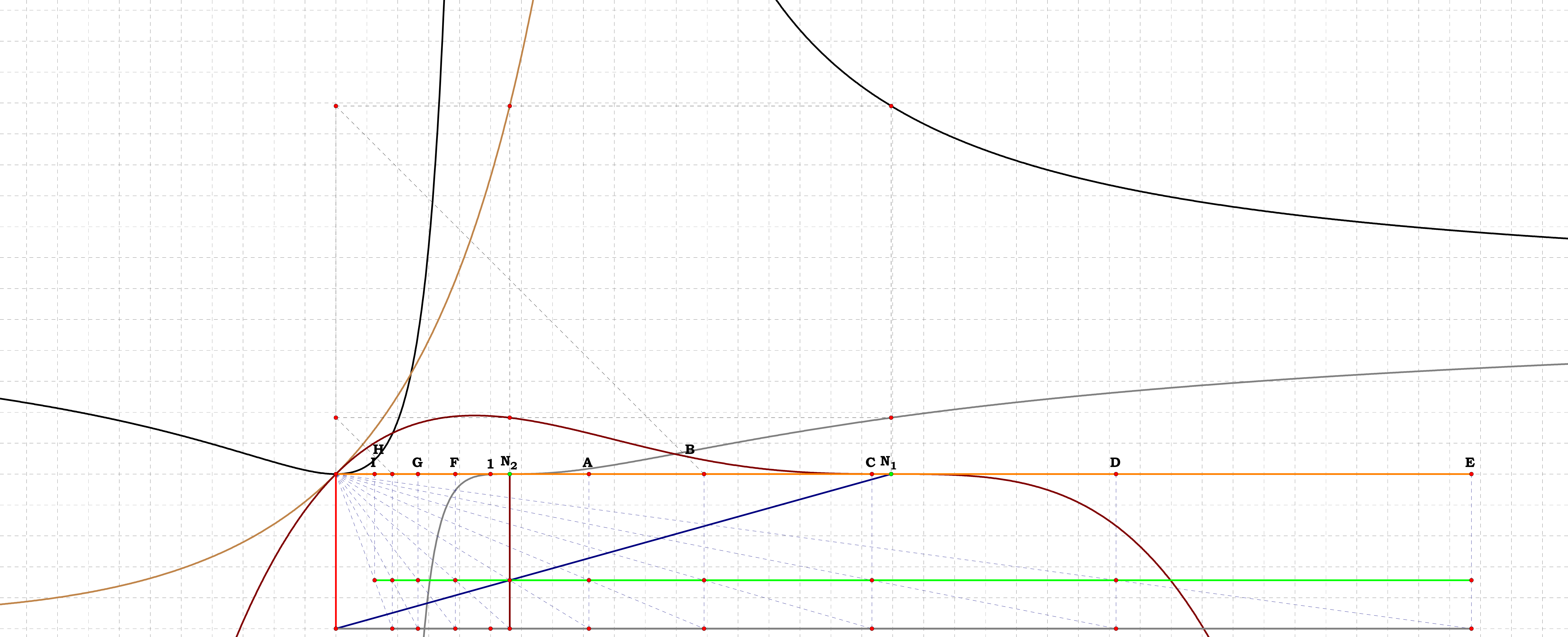
$$\frac{N_1}{N_1-N_2}^{1} - A = 0.00000$$
$$\frac{N_1}{N_1-N_2}^{2} - B = 0.00000$$
$$\frac{N_1}{N_1-N_2}^{3} - C = 0.00000$$
$$\frac{N_1}{N_1-N_2}^{4} - D = 0.00000$$
$$\frac{N_1}{N_1-N_2}^{5} - E = 0.00000$$

$$\frac{N_1}{N_1-N_2}^{-1} - F = 0.00000$$
$$\frac{N_1}{N_1-N_2}^{-2} - G = 0.00000$$
$$\frac{N_1}{N_1-N_2}^{-3} - H = 0.00000$$
$$\frac{N_1}{N_1-N_2}^{-4} - I = 0.00000$$

Plate 8

$$\frac{N_1}{N_1-N_2} - A = 0.00000$$
$$\frac{N_1^2}{(N_1^2 - 2 \cdot N_1 \cdot N_2) + N_2^2} - B = 0.00000$$
$$\frac{N_1^3}{((N_1^3 - 3 \cdot N_1^2 \cdot N_2) + 3 \cdot N_1 \cdot N_2^2) - N_2^3} - C = 0.00000$$
$$\frac{N_1^4}{(((N_1^4 - 4 \cdot N_1^3 \cdot N_2) + 6 \cdot N_1^2 \cdot N_2^2) - 4 \cdot N_1 \cdot N_2^3) + N_2^4} - D = 0.00000$$
$$\frac{N_1^5}{((((N_1^5 - 5 \cdot N_1^4 \cdot N_2) + 10 \cdot N_1^3 \cdot N_2^2) - 10 \cdot N_1^2 \cdot N_2^3) + 5 \cdot N_1 \cdot N_2^4) - N_2^5} - E = 0.00000$$

$$\frac{(((N_1^4 - 4 \cdot N_1^3 \cdot N_2) + 6 \cdot N_1^2 \cdot N_2^2) - 4 \cdot N_1 \cdot N_2^3) + N_2^4}{N_1^4} - I = 0.00000$$
$$\frac{((N_1^3 - 3 \cdot N_1^2 \cdot N_2) + 3 \cdot N_1 \cdot N_2^2) - N_2^3}{N_1^3} - H = 0.00000$$
$$\frac{(N_1^2 - 2 \cdot N_1 \cdot N_2) + N_2^2}{N_1^2} - G = 0.00000$$
$$\frac{N_1 - N_2}{N_1} - F = 0.00000$$



$A = 1.63549$

$B = 2.38058$

$C = 3.46513$

$D = 5.04377$

$E = 7.34160$

$F = 0.77193$

$G = 0.53032$

$H = 0.36434$

$I = 0.25030$

$N_1 = 3.58991$

$N_2 = 1.12360$

$\frac{N_1}{N_1 - N_2} = 1.45558$

$N_2 \cdot \frac{N_1}{N_1 - N_2}^{1} - A = 0.00000$

$N_2 \cdot \frac{N_1}{N_1 - N_2}^{2} - B = 0.00000$

$N_2 \cdot \frac{N_1}{N_1 - N_2}^{3} - C = 0.00000$

$N_2 \cdot \frac{N_1}{N_1 - N_2}^{4} - D = 0.00000$

$N_2 \cdot \frac{N_1}{N_1 - N_2}^{5} - E = 0.00000$

$N_2 \cdot \frac{N_1}{N_1 - N_2}^{-1} - F = 0.00000$

$N_2 \cdot \frac{N_1}{N_1 - N_2}^{-2} - G = 0.00000$

$N_2 \cdot \frac{N_1}{N_1 - N_2}^{-3} - H = 0.00000$

$N_2 \cdot \frac{N_1}{N_1 - N_2}^{-4} - I = 0.00000$

$\frac{N_1 \cdot N_2}{N_1 - N_2} - A = 0.00000$

$\frac{N_1^2 \cdot N_2}{(N_1^2 - 2 \cdot N_1 \cdot N_2) + N_2^2} - B = 0.00000$

$\frac{N_1^3 \cdot N_2}{((N_1^3 - 3 \cdot N_1^2 \cdot N_2) + 3 \cdot N_1 \cdot N_2^2) - N_2^3} - C = 0.00000$

$\frac{N_1^4 \cdot N_2}{(((N_1^4 - 4 \cdot N_1^3 \cdot N_2) + 6 \cdot N_1^2 \cdot N_2^2) - 4 \cdot N_1 \cdot N_2^3) + N_2^4} - D = 0.00000$

$\frac{N_1^5 \cdot N_2}{((((N_1^5 - 5 \cdot N_1^4 \cdot N_2) + 10 \cdot N_1^3 \cdot N_2^2) - 10 \cdot N_1^2 \cdot N_2^3) + 5 \cdot N_1 \cdot N_2^4) - N_2^5} - E = 0.00000$

$\frac{(((N_1^4 \cdot N_2 - 4 \cdot N_1^3 \cdot N_2^2) + 6 \cdot N_1^2 \cdot N_2^3) - 4 \cdot N_1 \cdot N_2^4) + N_2^5}{N_1^4} - I = 0.00000$

$\frac{((N_1^3 \cdot N_2 - 3 \cdot N_1^2 \cdot N_2^2) + 3 \cdot N_1 \cdot N_2^3) - N_2^4}{N_1^3} - H = 0.00000$

$\frac{(N_1^2 \cdot N_2 - 2 \cdot N_1 \cdot N_2^2) + N_2^3}{N_1^2} - G = 0.00000$

$\frac{N_1 \cdot N_2 - N_2^2}{N_1} - F = 0.00000$

Plate 9

$N_1 = 2.73670$

$N_2 = 0.77575$

$N_3 = 1.44291$

$\frac{N_1}{N_1 - N_2} = 1.39560$

A = 2.01373
B = 2.81035
C = 3.92211
D = 5.47368
E = 7.63905
F = 1.03391
G = 0.74083
H = 0.53084
I = 0.38037

$N_3 \cdot \left(\frac{N_1}{N_1 - N_2}\right)^{1} - A = 0.00000$

$N_3 \cdot \left(\frac{N_1}{N_1 - N_2}\right)^{2} - B = 0.00000$

$N_3 \cdot \left(\frac{N_1}{N_1 - N_2}\right)^{3} - C = 0.00000$

$N_3 \cdot \left(\frac{N_1}{N_1 - N_2}\right)^{4} - D = 0.00000$

$N_3 \cdot \left(\frac{N_1}{N_1 - N_2}\right)^{5} - E = 0.00000$

$N_3 \cdot \left(\frac{N_1}{N_1 - N_2}\right)^{-1} - F = 0.00000$

$N_3 \cdot \left(\frac{N_1}{N_1 - N_2}\right)^{-2} - G = 0.00000$

$N_3 \cdot \left(\frac{N_1}{N_1 - N_2}\right)^{-3} - H = 0.00000$

$N_3 \cdot \left(\frac{N_1}{N_1 - N_2}\right)^{-4} - I = 0.00000$

$\frac{N_1 \cdot N_3}{N_1 - N_2} - A = 0.00000$

$\frac{N_1^2 \cdot N_3}{(N_1^2 - 2 \cdot N_1 \cdot N_2) + N_2^2} - B = 0.00000$

$\frac{N_1^3 \cdot N_3}{((N_1^3 - 3 \cdot N_1^2 \cdot N_2) + 3 \cdot N_1 \cdot N_2^2) - N_2^3} - C = 0.00000$

$\frac{N_1^4 \cdot N_3}{(((N_1^4 - 4 \cdot N_1^3 \cdot N_2) + 6 \cdot N_1^2 \cdot N_2^2) - 4 \cdot N_1 \cdot N_2^3) + N_2^4} - D = 0.00000$

$\frac{N_1^5 \cdot N_3}{((((N_1^5 - 5 \cdot N_1^4 \cdot N_2) + 10 \cdot N_1^3 \cdot N_2^2) - 10 \cdot N_1^2 \cdot N_2^3) + 5 \cdot N_1 \cdot N_2^4) - N_2^5} - E = 0.00000$

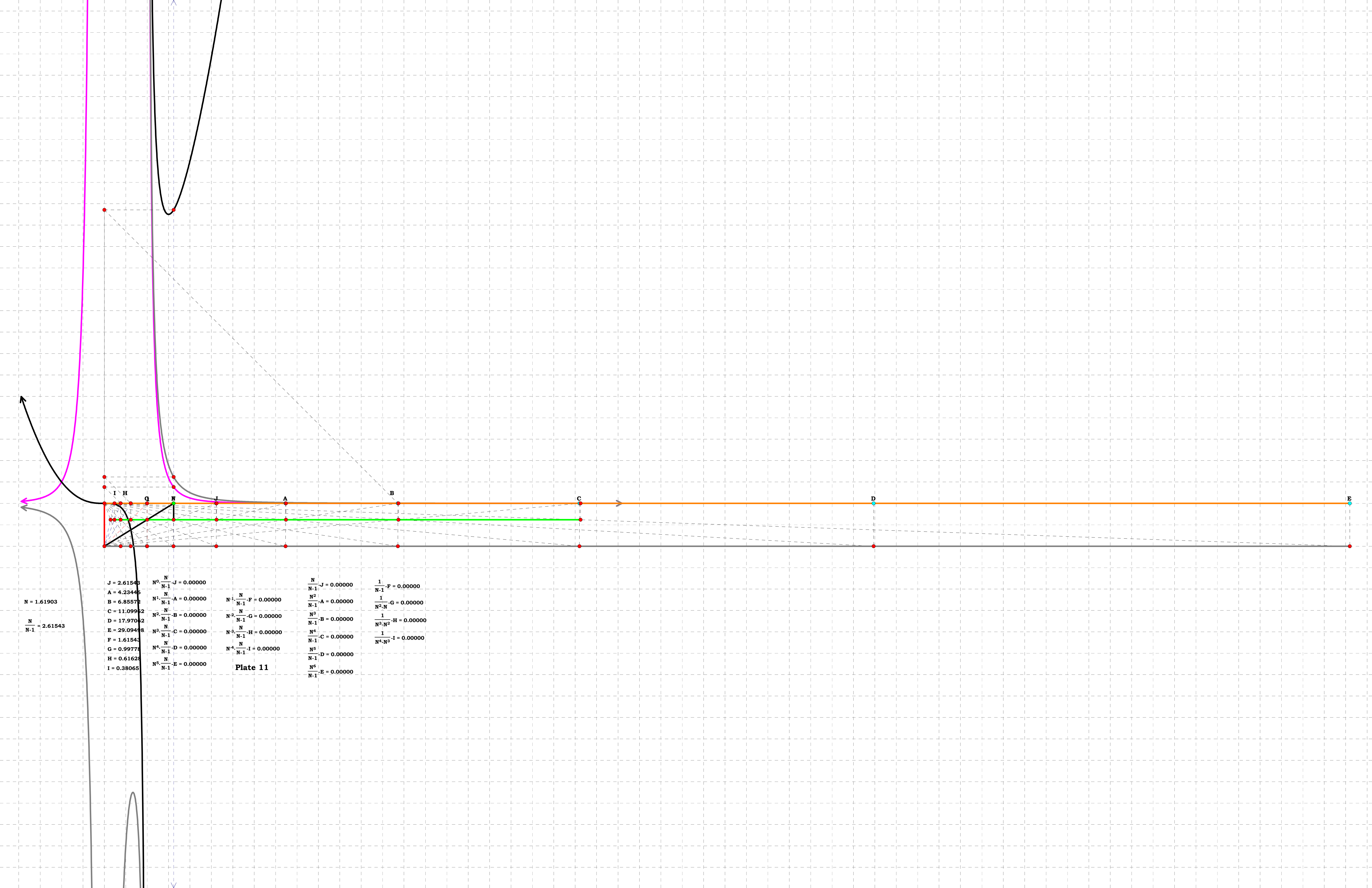
$\frac{(((N_1^4 \cdot N_3 - 4 \cdot N_1^3 \cdot N_2 \cdot N_3) + 6 \cdot N_1^2 \cdot N_2^2 \cdot N_3) - 4 \cdot N_1 \cdot N_2^3 \cdot N_3) + N_2^4 \cdot N_3}{N_1^4} - I = 0.00000$

$\frac{((N_1^3 \cdot N_3 - 3 \cdot N_1^2 \cdot N_2 \cdot N_3) + 3 \cdot N_1 \cdot N_2^2 \cdot N_3) - N_2^3 \cdot N_3}{N_1^3} - H = 0.00000$

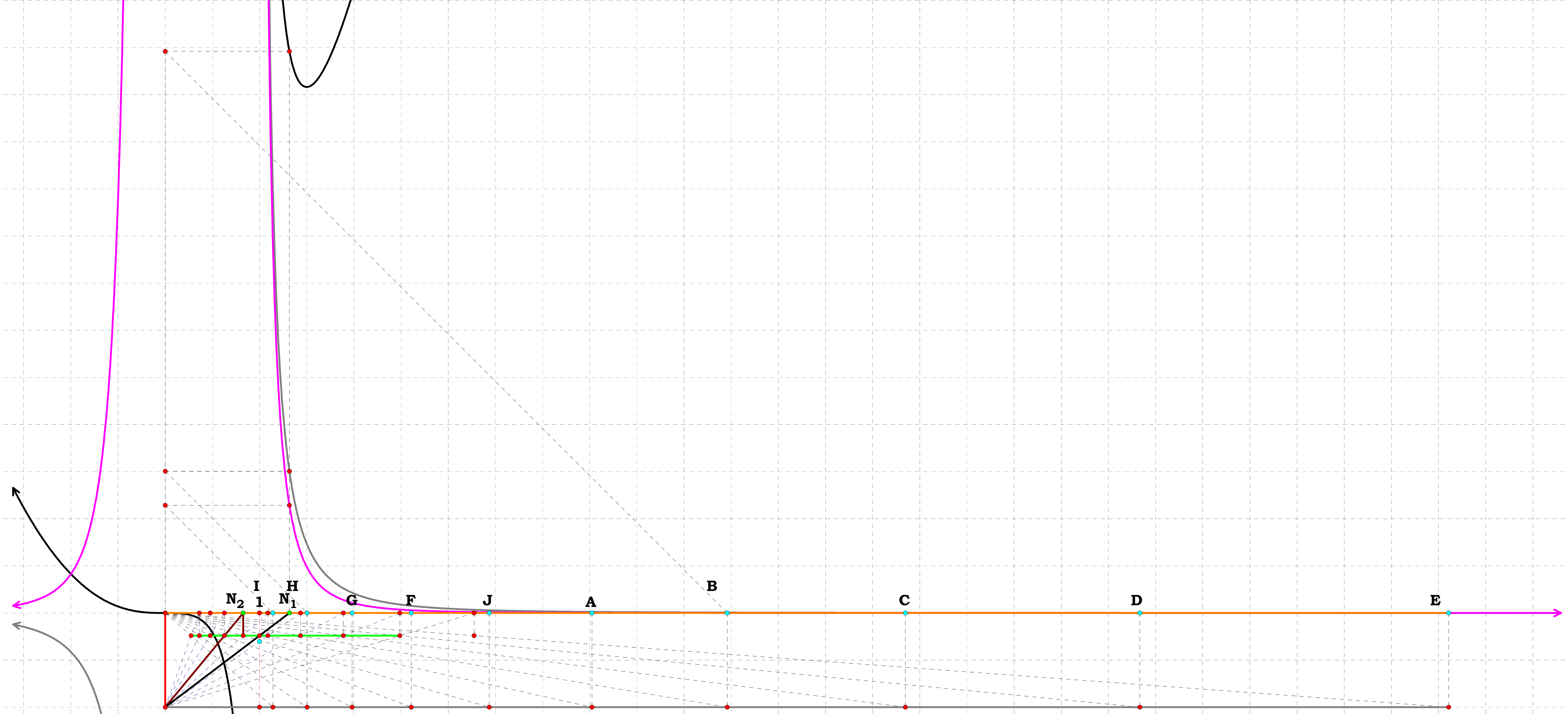
$\frac{(N_1^2 \cdot N_3 - 2 \cdot N_1 \cdot N_2 \cdot N_3) + N_2^2 \cdot N_3}{N_1^2} - G = 0.00000$

$\frac{N_1 \cdot N_3 - N_2 \cdot N_3}{N_1} - F = 0.00000$

Plate 10



I
H
G
N
J
A
B
C
D
E
N = 1.61903
$\frac{N}{N-1} = 2.61543$
J = 2.61543
A = 4.23446
B = 6.85572
C = 11.09962
D = 17.97062
E = 29.09498
F = 1.61543
G = 0.99778
H = 0.61628
I = 0.38065
$N^0 \cdot \frac{N}{N-1} - J = 0.00000$
$N^1 \cdot \frac{N}{N-1} - A = 0.00000$
$N^2 \cdot \frac{N}{N-1} - B = 0.00000$
$N^3 \cdot \frac{N}{N-1} - C = 0.00000$
$N^4 \cdot \frac{N}{N-1} - D = 0.00000$
$N^5 \cdot \frac{N}{N-1} - E = 0.00000$
$N^{-1} \cdot \frac{N}{N-1} - F = 0.00000$
$N^{-2} \cdot \frac{N}{N-1} - G = 0.00000$
$N^{-3} \cdot \frac{N}{N-1} - H = 0.00000$
$N^{-4} \cdot \frac{N}{N-1} - I = 0.00000$
Plate 11
$\frac{N}{N-1} - J = 0.00000$
$\frac{N^2}{N-1} - A = 0.00000$
$\frac{N^3}{N-1} - B = 0.00000$
$\frac{N^4}{N-1} - C = 0.00000$
$\frac{N^5}{N-1} - D = 0.00000$
$\frac{N^6}{N-1} - E = 0.00000$
$\frac{1}{N-1} - F = 0.00000$
$\frac{1}{N^2-N} - G = 0.00000$
$\frac{1}{N^3-N^2} - H = 0.00000$
$\frac{1}{N^4-N^3} - I = 0.00000$



$N_1 = 1.31693$

$N_2 = 0.82679$

$\frac{N_1 \cdot N_2}{N_1 - 1} = 3.43551$

J = 3.43551
A = 4.52433
B = 5.95822
C = 7.84657
D = 10.33339
E = 13.60837
F = 2.60872
G = 1.98091
H = 1.50419
I = 1.14219

$N_1^{0} \cdot \frac{N_1 \cdot N_2}{N_1 - 1} - J = 0.00000$

$N_1^{1} \cdot \frac{N_1 \cdot N_2}{N_1 - 1} - A = 0.00000$

$N_1^{2} \cdot \frac{N_1 \cdot N_2}{N_1 - 1} - B = 0.00000$

$N_1^{3} \cdot \frac{N_1 \cdot N_2}{N_1 - 1} - C = 0.00000$

$N_1^{4} \cdot \frac{N_1 \cdot N_2}{N_1 - 1} - D = 0.00000$

$N_1^{5} \cdot \frac{N_1 \cdot N_2}{N_1 - 1} - E = 0.00000$

$N_1^{-1} \cdot \frac{N_1 \cdot N_2}{N_1 - 1} - F = 0.00000$

$N_1^{-2} \cdot \frac{N_1 \cdot N_2}{N_1 - 1} - G = 0.00000$

$N_1^{-3} \cdot \frac{N_1 \cdot N_2}{N_1 - 1} - H = 0.00000$

$N_1^{-4} \cdot \frac{N_1 \cdot N_2}{N_1 - 1} - I = 0.00000$

Plate 12

$\frac{N_1 \cdot N_2}{N_1 - 1} - J = 0.00000$

$\frac{N_1^{2} \cdot N_2}{N_1 - 1} - A = 0.00000$

$\frac{N_1^{3} \cdot N_2}{N_1 - 1} - B = 0.00000$

$\frac{N_1^{4} \cdot N_2}{N_1 - 1} - C = 0.00000$

$\frac{N_1^{5} \cdot N_2}{N_1 - 1} - D = 0.00000$

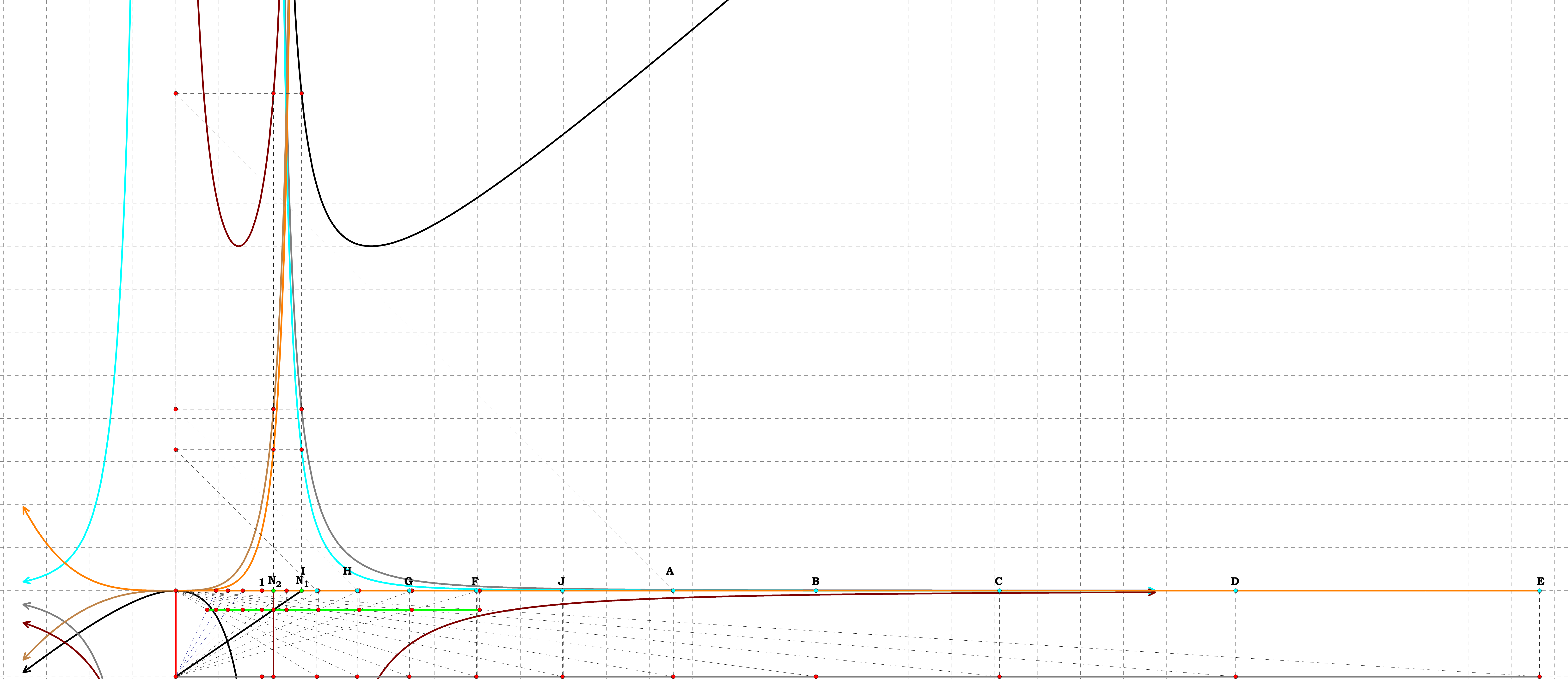
$\frac{N_1^{6} \cdot N_2}{N_1 - 1} - E = 0.00000$

$\frac{N_2}{N_1 - 1} - F = 0.00000$

$\frac{N_2}{N_1^{2} - N_1} - G = 0.00000$

$\frac{N_2}{N_1^{3} - N_1^{2}} - H = 0.00000$

$\frac{N_2}{N_1^{4} - N_1^{3}} - I = 0.00000$



$N_1 = 1.46046$

$N_2 = 1.13509$

$\frac{N_1}{N_2} = 1.28665$

$\frac{N_1}{N_1 \cdot N_2} = 4.48863$

J = 4.48863
A = 5.77527
B = 7.43073
C = 9.56072
D = 12.30126
E = 15.82736
F = 3.48863
G = 2.71141
H = 2.10735
I = 1.63736

$\frac{N_1{}^{0}}{N_2} \cdot \frac{N_1}{N_1 \cdot N_2} - J = 0.00000$

$\frac{N_1{}^{1}}{N_2} \cdot \frac{N_1}{N_1 \cdot N_2} - A = 0.00000$

$\frac{N_1{}^{2}}{N_2} \cdot \frac{N_1}{N_1 \cdot N_2} - B = 0.00000$

$\frac{N_1{}^{3}}{N_2} \cdot \frac{N_1}{N_1 \cdot N_2} - C = 0.00000$

$\frac{N_1{}^{4}}{N_2} \cdot \frac{N_1}{N_1 \cdot N_2} - D = 0.00000$

$\frac{N_1{}^{5}}{N_2} \cdot \frac{N_1}{N_1 \cdot N_2} - E = 0.00000$

$\frac{N_1{}^{-1}}{N_2} \cdot \frac{N_1}{N_1 \cdot N_2} - F = 0.00000$

$\frac{N_1{}^{-2}}{N_2} \cdot \frac{N_1}{N_1 \cdot N_2} - G = 0.00000$

$\frac{N_1{}^{-3}}{N_2} \cdot \frac{N_1}{N_1 \cdot N_2} - H = 0.00000$

$\frac{N_1{}^{-4}}{N_2} \cdot \frac{N_1}{N_1 \cdot N_2} - I = 0.00000$

Plate 13

$\frac{N_1}{N_1 \cdot N_2} - J = 0.00000$

$\frac{N_1^2}{N_1 \cdot N_2 \cdot N_2^2} - A = 0.00000$

$\frac{N_1^3}{N_1 \cdot N_2^2 \cdot N_2^3} - B = 0.00000$

$\frac{N_1^4}{N_1 \cdot N_2^3 \cdot N_2^4} - C = 0.00000$

$\frac{N_1^5}{N_1 \cdot N_2^4 \cdot N_2^5} - D = 0.00000$

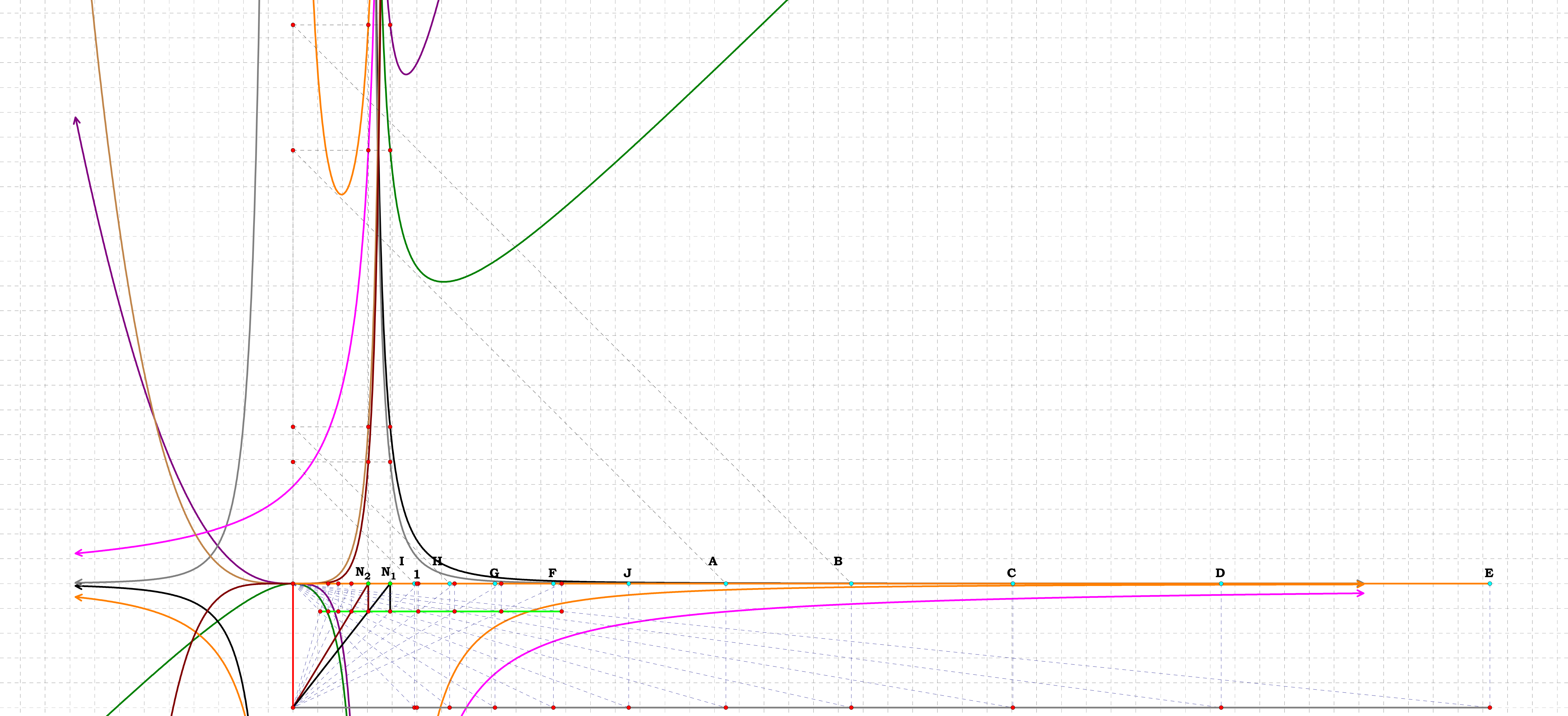
$\frac{N_1^6}{N_1 \cdot N_2^5 \cdot N_2^6} - E = 0.00000$

$\frac{N_2}{N_1 \cdot N_2} - F = 0.00000$

$\frac{N_2^2}{N_1^2 \cdot N_1 \cdot N_2} - G = 0.00000$

$\frac{N_2^3}{N_1^3 \cdot N_1^2 \cdot N_2} - H = 0.00000$

$\frac{N_2^4}{N_1^4 \cdot N_1^3 \cdot N_2} - I = 0.00000$



$N_1 = 0.78415$

$N_2 = 0.60814$

$\frac{N_1}{N_2} = 1.28943$

$\frac{N_1 \cdot N_2}{N_1 - N_2} = 2.70928$

J = 2.70928
A = 3.49343
B = 4.50454
C = 5.80830
D = 7.48941
E = 9.65708
F = 2.10114
G = 1.62951
H = 1.26374
I = 0.98008

$\frac{N_1{}^{0}}{N_2} \cdot \frac{N_1 \cdot N_2}{N_1 - N_2} - J = 0.00000$

$\frac{N_1{}^{1}}{N_2} \cdot \frac{N_1 \cdot N_2}{N_1 - N_2} - A = 0.00000$

$\frac{N_1{}^{2}}{N_2} \cdot \frac{N_1 \cdot N_2}{N_1 - N_2} - B = 0.00000$

$\frac{N_1{}^{3}}{N_2} \cdot \frac{N_1 \cdot N_2}{N_1 - N_2} - C = 0.00000$

$\frac{N_1{}^{4}}{N_2} \cdot \frac{N_1 \cdot N_2}{N_1 - N_2} - D = 0.00000$

$\frac{N_1{}^{5}}{N_2} \cdot \frac{N_1 \cdot N_2}{N_1 - N_2} - E = 0.00000$

$\frac{N_1{}^{-1}}{N_2} \cdot \frac{N_1 \cdot N_2}{N_1 - N_2} - F = 0.00000$

$\frac{N_1{}^{-2}}{N_2} \cdot \frac{N_1 \cdot N_2}{N_1 - N_2} - G = 0.00000$

$\frac{N_1{}^{-3}}{N_2} \cdot \frac{N_1 \cdot N_2}{N_1 - N_2} - H = 0.00000$

$\frac{N_1{}^{-4}}{N_2} \cdot \frac{N_1 \cdot N_2}{N_1 - N_2} - I = 0.00000$

Plate 14

$\frac{N_1 \cdot N_2}{N_1 - N_2} - J = 0.00000$

$\frac{N_1{}^{2}}{N_1 - N_2} - A = 0.00000$

$\frac{N_1{}^{3}}{N_1 \cdot N_2 - N_2{}^{2}} - B = 0.00000$

$\frac{N_1{}^{4}}{N_1 \cdot N_2{}^{2} - N_2{}^{3}} - C = 0.00000$

$\frac{N_1{}^{5}}{N_1 \cdot N_2{}^{3} - N_2{}^{4}} - D = 0.00000$

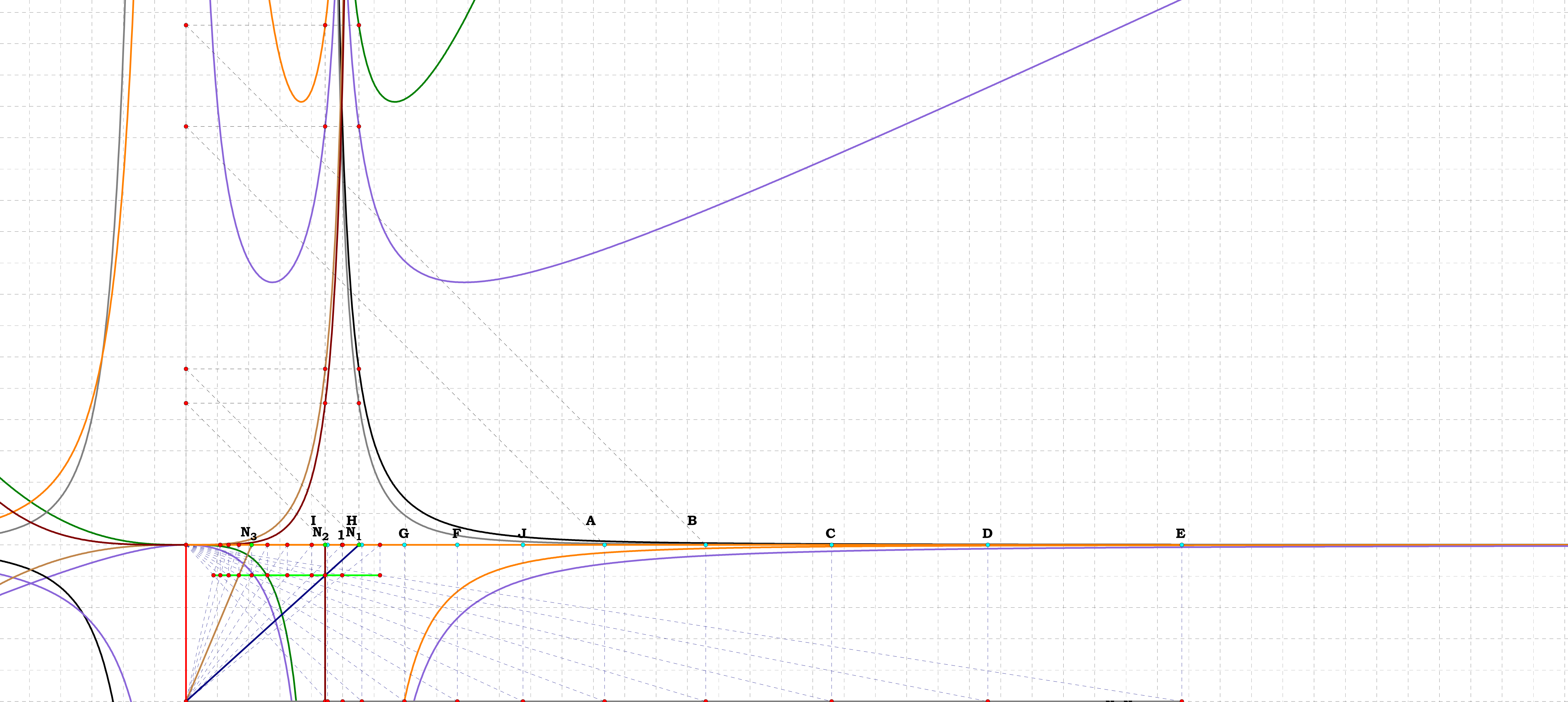
$\frac{N_1{}^{6}}{N_1 \cdot N_2{}^{4} - N_2{}^{5}} - E = 0.00000$

$\frac{N_2{}^{2}}{N_1 - N_2} - F = 0.00000$

$\frac{N_2{}^{3}}{N_1{}^{2} - N_1 \cdot N_2} - G = 0.00000$

$\frac{N_2{}^{4}}{N_1{}^{3} - N_1{}^{2} \cdot N_2} - H = 0.00000$

$\frac{N_2{}^{5}}{N_1{}^{4} - N_1{}^{3} \cdot N_2} - I = 0.00000$



$N_1 = 1.10350$

$N_2 = 0.88853$

$N_3 = 0.41903$

$\frac{N_1}{N_2} = 1.24195$

$\frac{N_1 \cdot N_3}{N_1 - N_2} = 2.15096$

J = 2.15096
A = 2.67138
B = 3.31772
C = 4.12043
D = 5.11735
E = 6.35548
F = 1.73193
G = 1.39453
H = 1.12286
I = 0.90411

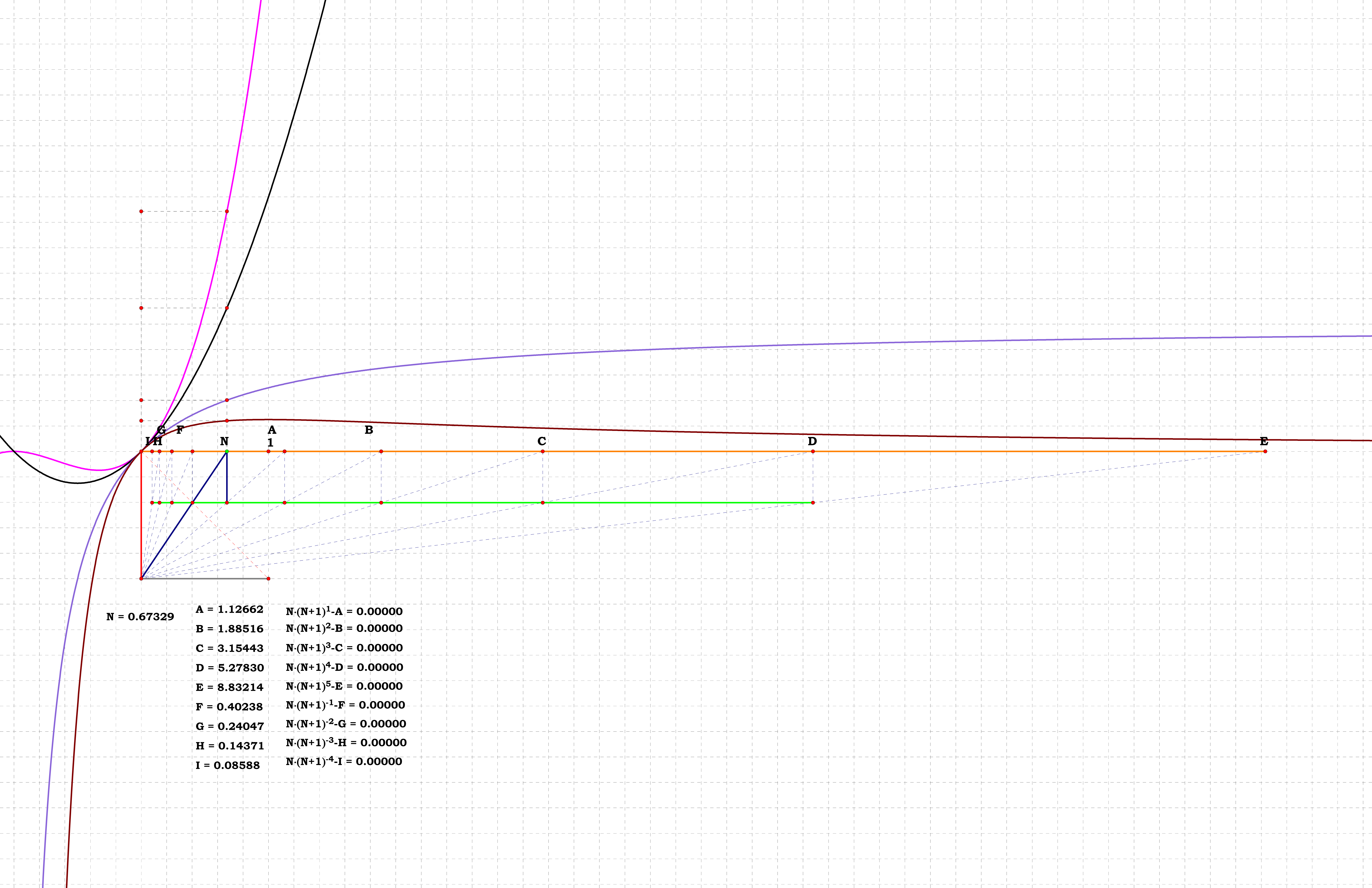
$$\frac{N_1^{\,0}}{N_2} \cdot \frac{N_1 \cdot N_3}{N_1 - N_2} - J = 0.00000$$
$$\frac{N_1^{\,1}}{N_2} \cdot \frac{N_1 \cdot N_3}{N_1 - N_2} - A = 0.00000$$
$$\frac{N_1^{\,2}}{N_2} \cdot \frac{N_1 \cdot N_3}{N_1 - N_2} - B = 0.00000$$
$$\frac{N_1^{\,3}}{N_2} \cdot \frac{N_1 \cdot N_3}{N_1 - N_2} - C = 0.00000$$
$$\frac{N_1^{\,4}}{N_2} \cdot \frac{N_1 \cdot N_3}{N_1 - N_2} - D = 0.00000$$
$$\frac{N_1^{\,5}}{N_2} \cdot \frac{N_1 \cdot N_3}{N_1 - N_2} - E = 0.00000$$

$$\frac{N_1^{\,-1}}{N_2} \cdot \frac{N_1 \cdot N_3}{N_1 - N_2} - F = 0.00000$$
$$\frac{N_1^{\,-2}}{N_2} \cdot \frac{N_1 \cdot N_3}{N_1 - N_2} - G = 0.00000$$
$$\frac{N_1^{\,-3}}{N_2} \cdot \frac{N_1 \cdot N_3}{N_1 - N_2} - H = 0.00000$$
$$\frac{N_1^{\,-4}}{N_2} \cdot \frac{N_1 \cdot N_3}{N_1 - N_2} - I = 0.00000$$

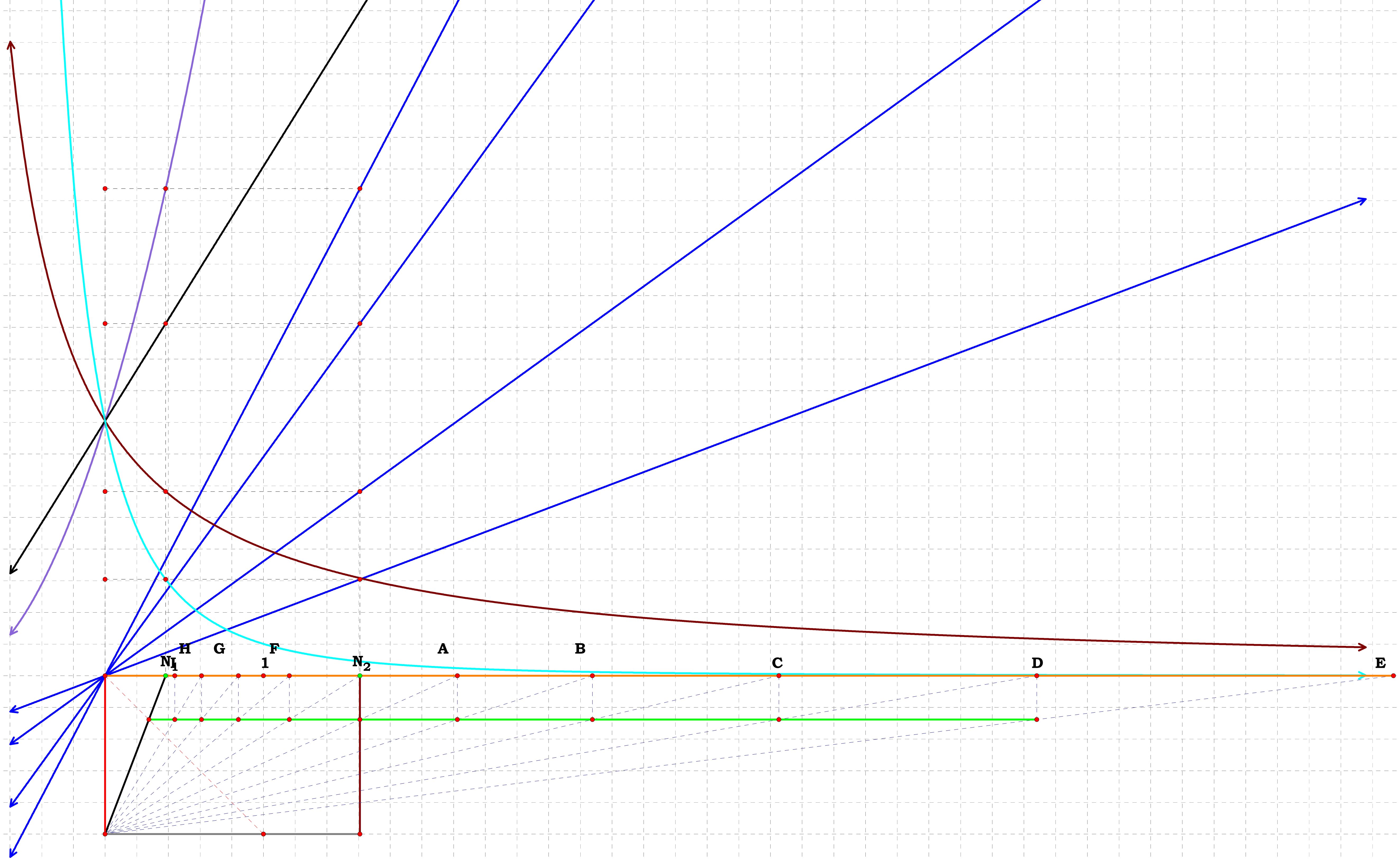
Plate 15

$$\frac{N_1 \cdot N_3}{N_1 - N_2} - J = 0.00000$$
$$\frac{N_1^2 \cdot N_3}{N_1 \cdot N_2 - N_2^2} - A = 0.00000$$
$$\frac{N_1^3 \cdot N_3}{N_1 \cdot N_2^2 - N_2^3} - B = 0.00000$$
$$\frac{N_1^4 \cdot N_3}{N_1 \cdot N_2^3 - N_2^4} - C = 0.00000$$
$$\frac{N_1^5 \cdot N_3}{N_1 \cdot N_2^4 - N_2^5} - D = 0.00000$$
$$\frac{N_1^6 \cdot N_3}{N_1 \cdot N_2^5 - N_2^6} - E = 0.00000$$

$$\frac{N_2 \cdot N_3}{N_1 - N_2} - F = 0.00000$$
$$\frac{N_2^2 \cdot N_3}{N_1^2 - N_1 \cdot N_2} - G = 0.00000$$
$$\frac{N_2^3 \cdot N_3}{N_1^3 - N_1^2 \cdot N_2} - H = 0.00000$$
$$\frac{N_2^4 \cdot N_3}{N_1^4 - N_1^3 \cdot N_2} - I = 0.00000$$



G
F
A
B
I
H
N
1
C
D
E
$N = 0.67329$
$A = 1.12662$
$B = 1.88516$
$C = 3.15443$
$D = 5.27830$
$E = 8.83214$
$F = 0.40238$
$G = 0.24047$
$H = 0.14371$
$I = 0.08588$
$N\cdot(N+1)^{1}-A = 0.00000$
$N\cdot(N+1)^{2}-B = 0.00000$
$N\cdot(N+1)^{3}-C = 0.00000$
$N\cdot(N+1)^{4}-D = 0.00000$
$N\cdot(N+1)^{5}-E = 0.00000$
$N\cdot(N+1)^{-1}-F = 0.00000$
$N\cdot(N+1)^{-2}-G = 0.00000$
$N\cdot(N+1)^{-3}-H = 0.00000$
$N\cdot(N+1)^{-4}-I = 0.00000$



$N_1 = 0.38279$

$N_2 = 1.60857$

$A = 2.22432$

$B = 3.07576$

$C = 4.25313$

$D = 5.88118$

$E = 8.13244$

$F = 1.16328$

$G = 0.84126$

$H = 0.60838$

$I = 0.43996$

$N_2 \cdot (N_1+1)^1 - A = 0.00000$

$N_2 \cdot (N_1+1)^2 - B = 0.00000$

$N_2 \cdot (N_1+1)^3 - C = 0.00000$

$N_2 \cdot (N_1+1)^4 - D = 0.00000$

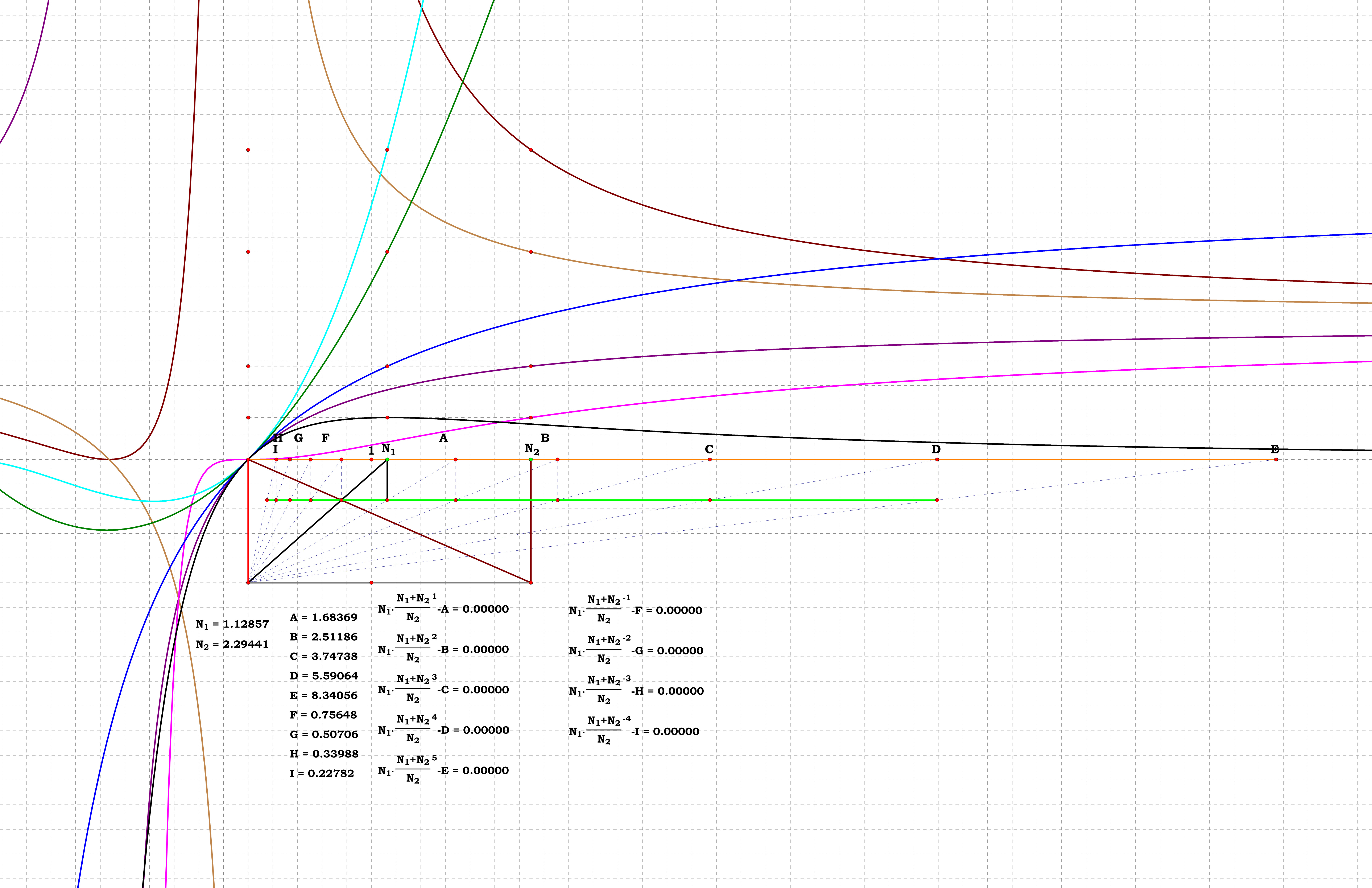
$N_2 \cdot (N_1+1)^5 - E = 0.00000$

$N_2 \cdot (N_1+1)^{-1} - F = 0.00000$

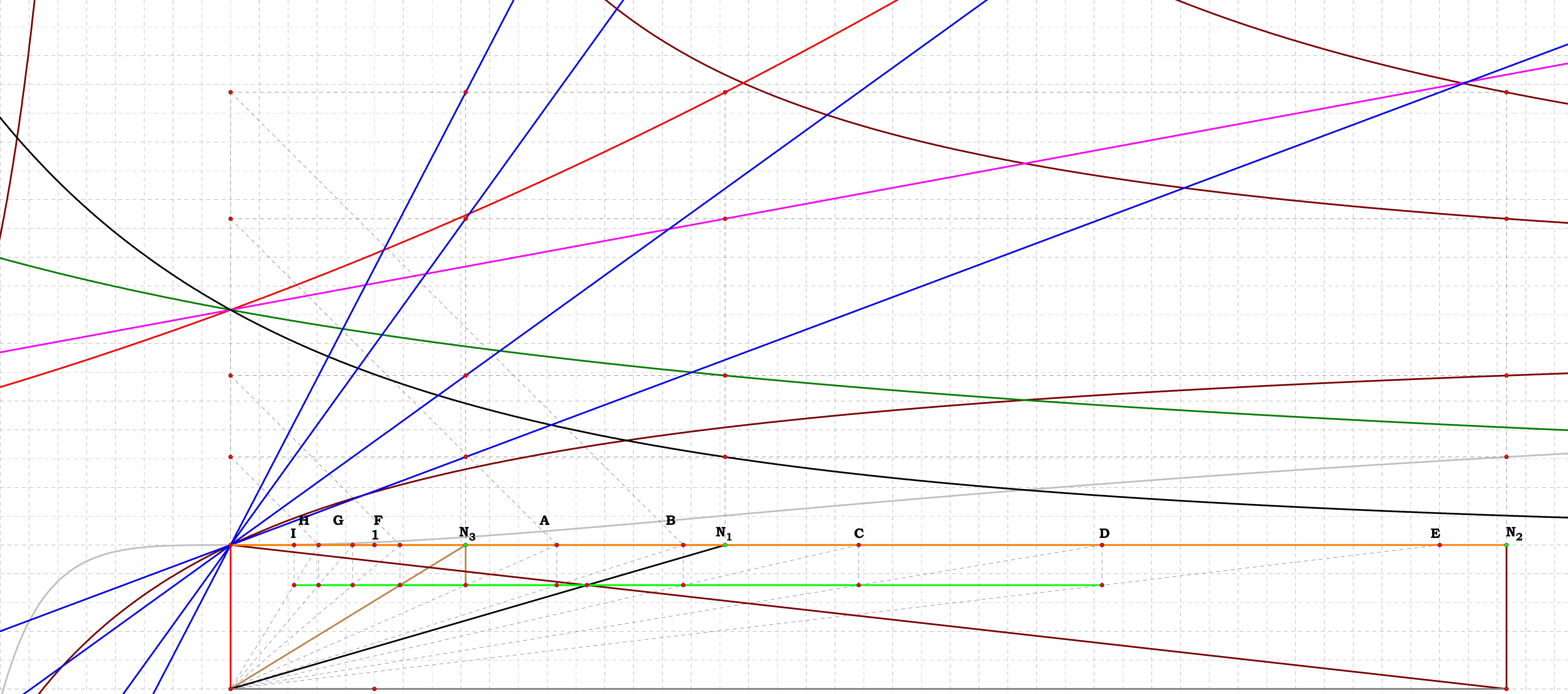
$N_2 \cdot (N_1+1)^{-2} - G = 0.00000$

$N_2 \cdot (N_1+1)^{-3} - H = 0.00000$

$N_2 \cdot (N_1+1)^{-4} - I = 0.00000$



H
I
G
F
1
N1
A
N2
B
C
D
E
N1 = 1.12857
N2 = 2.29441
A = 1.68369
B = 2.51186
C = 3.74738
D = 5.59064
E = 8.34056
F = 0.75648
G = 0.50706
H = 0.33988
I = 0.22782
$N_1 \cdot \frac{N_1+N_2}{N_2}^{1} - A = 0.00000$
$N_1 \cdot \frac{N_1+N_2}{N_2}^{2} - B = 0.00000$
$N_1 \cdot \frac{N_1+N_2}{N_2}^{3} - C = 0.00000$
$N_1 \cdot \frac{N_1+N_2}{N_2}^{4} - D = 0.00000$
$N_1 \cdot \frac{N_1+N_2}{N_2}^{5} - E = 0.00000$
$N_1 \cdot \frac{N_1+N_2}{N_2}^{-1} - F = 0.00000$
$N_1 \cdot \frac{N_1+N_2}{N_2}^{-2} - G = 0.00000$
$N_1 \cdot \frac{N_1+N_2}{N_2}^{-3} - H = 0.00000$
$N_1 \cdot \frac{N_1+N_2}{N_2}^{-4} - I = 0.00000$



$N_1 = 3.43566$

$N_2 = 8.86571$

$N_3 = 1.63369$

A = 2.26679

B = 3.14522

C = 4.36406

D = 6.05523

E = 8.40177

F = 1.17742

G = 0.84858

H = 0.61158

I = 0.44077

$N_3 \cdot \frac{N_1+N_2}{N_2}^{1} - A = 0.00000$

$N_3 \cdot \frac{N_1+N_2}{N_2}^{2} - B = 0.00000$

$N_3 \cdot \frac{N_1+N_2}{N_2}^{3} - C = 0.00000$

$N_3 \cdot \frac{N_1+N_2}{N_2}^{4} - D = 0.00000$

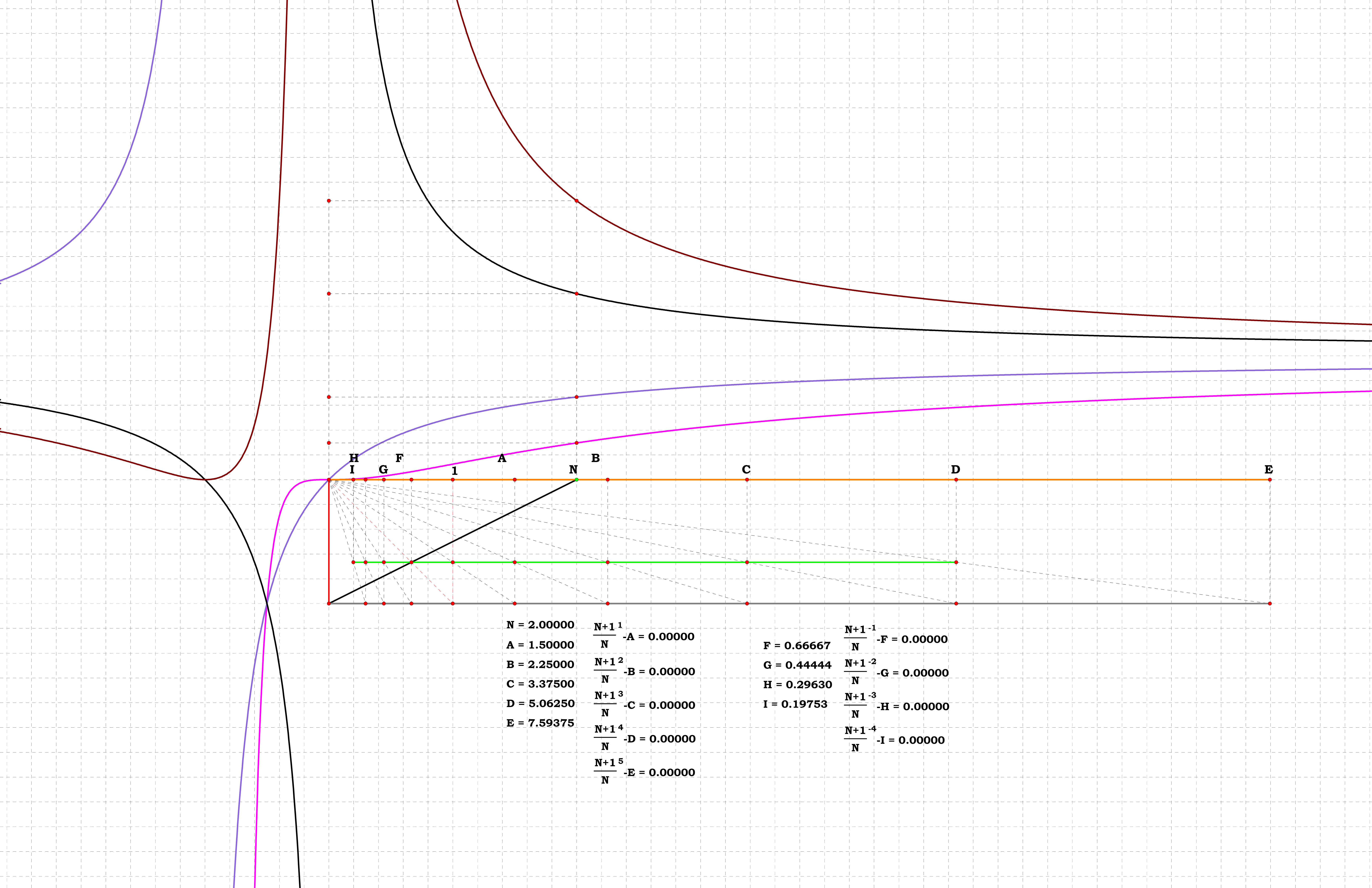
$N_3 \cdot \frac{N_1+N_2}{N_2}^{5} - E = 0.00000$

$N_3 \cdot \frac{N_1+N_2}{N_2}^{-1} - F = 0.00000$

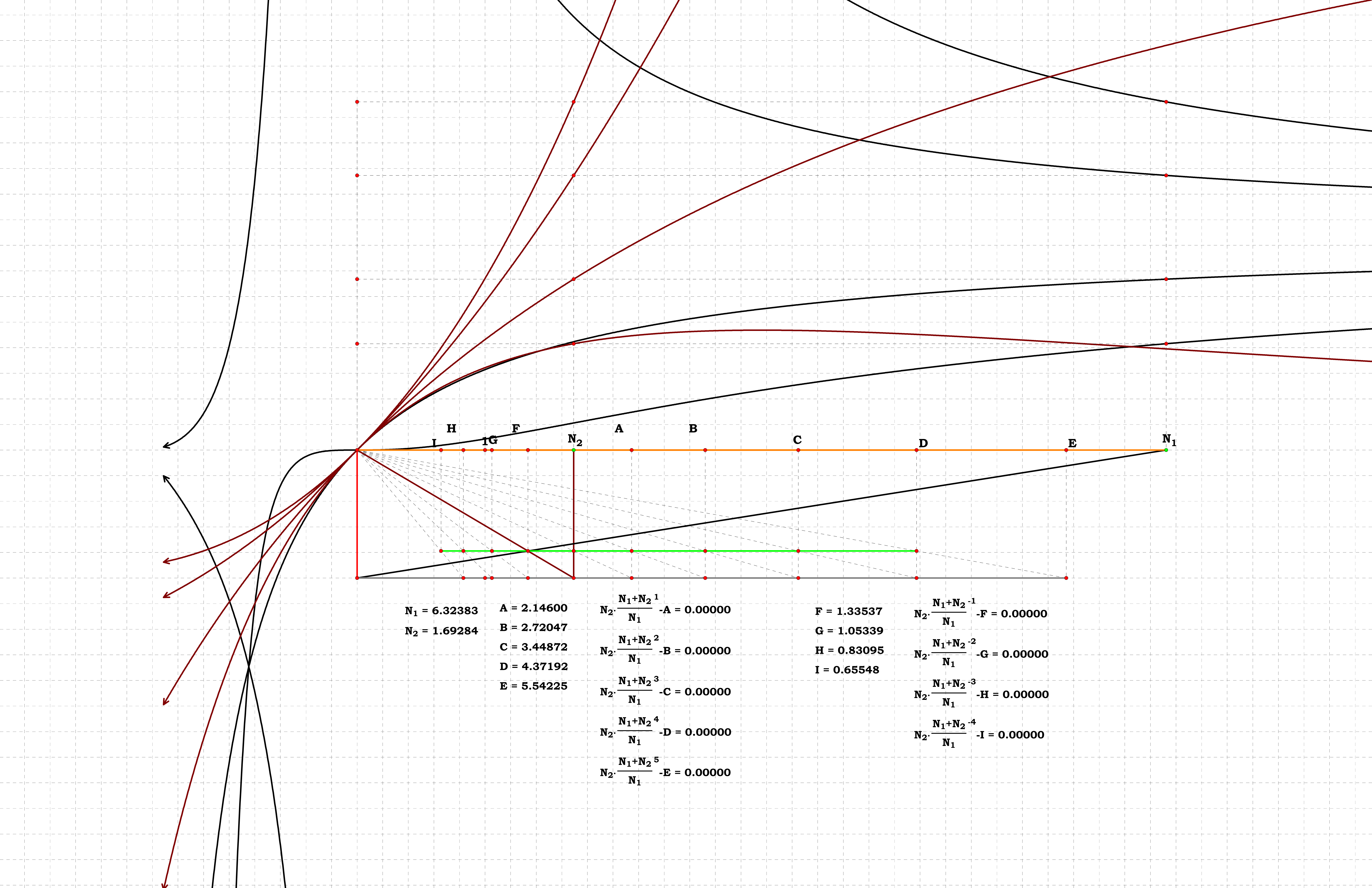
$N_3 \cdot \frac{N_1+N_2}{N_2}^{-2} - G = 0.00000$

$N_3 \cdot \frac{N_1+N_2}{N_2}^{-3} - H = 0.00000$

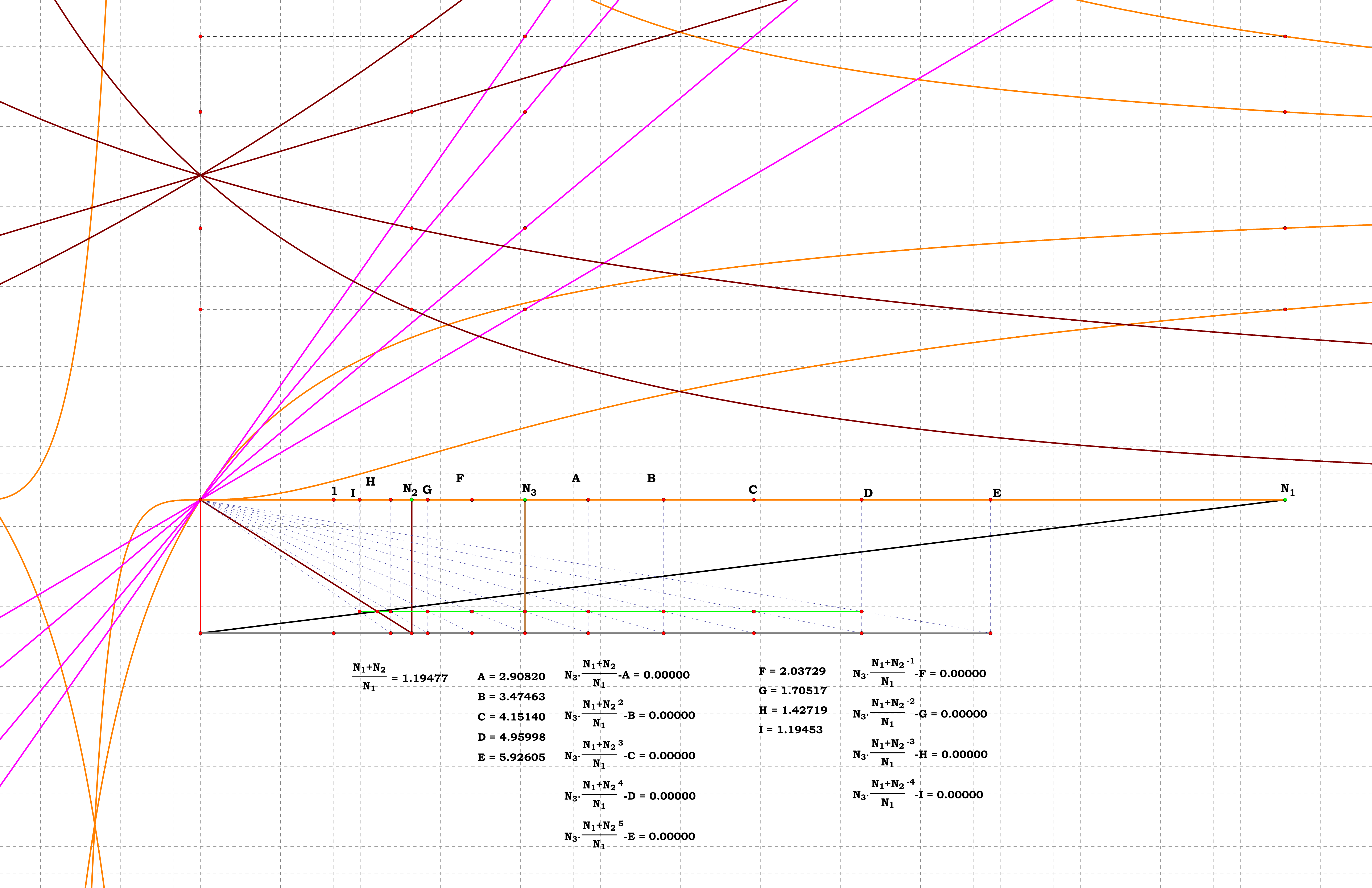
$N_3 \cdot \frac{N_1+N_2}{N_2}^{-4} - I = 0.00000$



H
I
G
F
1
A
N
B
C
D
E
N = 2.00000
A = 1.50000
B = 2.25000
C = 3.37500
D = 5.06250
E = 7.59375
$\frac{N+1}{N}^{1}$ -A = 0.00000
$\frac{N+1}{N}^{2}$ -B = 0.00000
$\frac{N+1}{N}^{3}$ -C = 0.00000
$\frac{N+1}{N}^{4}$ -D = 0.00000
$\frac{N+1}{N}^{5}$ -E = 0.00000
F = 0.66667
G = 0.44444
H = 0.29630
I = 0.19753
$\frac{N+1}{N}^{-1}$ -F = 0.00000
$\frac{N+1}{N}^{-2}$ -G = 0.00000
$\frac{N+1}{N}^{-3}$ -H = 0.00000
$\frac{N+1}{N}^{-4}$ -I = 0.00000



H
F
A
B
I
1G
N_2
C
D
E
N_1
$N_1 = 6.32383$
$N_2 = 1.69284$
A = 2.14600
B = 2.72047
C = 3.44872
D = 4.37192
E = 5.54225
$N_2 \cdot \frac{N_1+N_2}{N_1}^{1} - A = 0.00000$
$N_2 \cdot \frac{N_1+N_2}{N_1}^{2} - B = 0.00000$
$N_2 \cdot \frac{N_1+N_2}{N_1}^{3} - C = 0.00000$
$N_2 \cdot \frac{N_1+N_2}{N_1}^{4} - D = 0.00000$
$N_2 \cdot \frac{N_1+N_2}{N_1}^{5} - E = 0.00000$
F = 1.33537
G = 1.05339
H = 0.83095
I = 0.65548
$N_2 \cdot \frac{N_1+N_2}{N_1}^{-1} - F = 0.00000$
$N_2 \cdot \frac{N_1+N_2}{N_1}^{-2} - G = 0.00000$
$N_2 \cdot \frac{N_1+N_2}{N_1}^{-3} - H = 0.00000$
$N_2 \cdot \frac{N_1+N_2}{N_1}^{-4} - I = 0.00000$



$\frac{N_1+N_2}{N_1} = 1.19477$

A = 2.90820

B = 3.47463

C = 4.15140

D = 4.95998

E = 5.92605

$N_3 \cdot \frac{N_1+N_2}{N_1} - A = 0.00000$

$N_3 \cdot \frac{N_1+N_2}{N_1}^{2} - B = 0.00000$

$N_3 \cdot \frac{N_1+N_2}{N_1}^{3} - C = 0.00000$

$N_3 \cdot \frac{N_1+N_2}{N_1}^{4} - D = 0.00000$

$N_3 \cdot \frac{N_1+N_2}{N_1}^{5} - E = 0.00000$

F = 2.03729

G = 1.70517

H = 1.42719

I = 1.19453

$N_3 \cdot \frac{N_1+N_2}{N_1}^{-1} - F = 0.00000$

$N_3 \cdot \frac{N_1+N_2}{N_1}^{-2} - G = 0.00000$

$N_3 \cdot \frac{N_1+N_2}{N_1}^{-3} - H = 0.00000$

$N_3 \cdot \frac{N_1+N_2}{N_1}^{-4} - I = 0.00000$

N[1] -> 0
N[1] -> 1
N[1] -> 2

N_1 = 1.34212

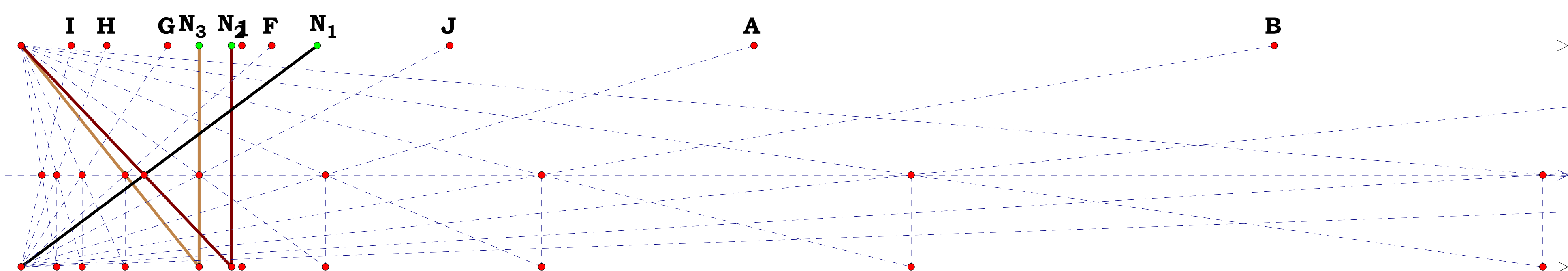
N[1] -> 3
N[1] -> 4
N[1] -> 5
N[1] -> 6
N[1] -> 7
N[1] -> 8
N[1] -> 9
N[1] -> 10
N[1] -> 11
N[2] -> 0
N[2] -> 1
N[2] -> 2
N[2] -> 3
N[2] -> 4
N[2] -> 5
N[2] -> 6
N[2] -> 7
N[2] -> 8
N[2] -> 9
N[2] -> 10
N[2] -> 11

N_2 = 0.95301

N[3] -> 0
N[3] -> 1
N[3] -> 2
N[3] -> 3
N[3] -> 4
N[3] -> 5
N[3] -> 6
N[3] -> 7
N[3] -> 8
N[3] -> 9
N[3] -> 10
N[3] -> 11

N_3 = 0.80616

N_1+N_3 = 2.14828



J = 1.94148

A = 3.32007

B = 5.67758

C = 9.70909

D = 16.60329

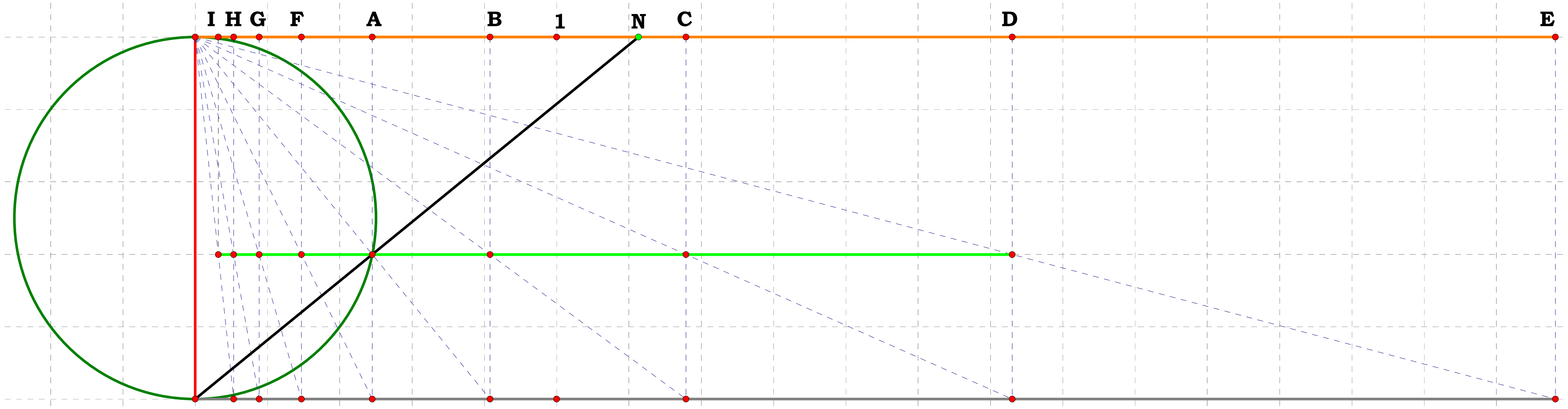
E = 28.39290

F = 1.13532

G = 0.66390

H = 0.38823

I = 0.22702



$$\frac{N}{N^2+1} = 0.48977$$

$$\frac{N^2+1}{N^2} = 1.66488$$

$N = 1.22639$

A = 0.48977
B = 0.81540
C = 1.35755
D = 2.26016
E = 3.76290

$$\frac{N}{N^2+1}\cdot\frac{N^2+1}{N^2}^{0} - A = 0.00000$$

$$\frac{N}{N^2+1}\cdot\frac{N^2+1}{N^2}^{1} - B = 0.00000$$

$$\frac{N}{N^2+1}\cdot\frac{N^2+1}{N^2}^{2} - C = 0.00000$$

$$\frac{N}{N^2+1}\cdot\frac{N^2+1}{N^2}^{3} - D = 0.00000$$

$$\frac{N}{N^2+1}\cdot\frac{N^2+1}{N^2}^{4} - E = 0.00000$$

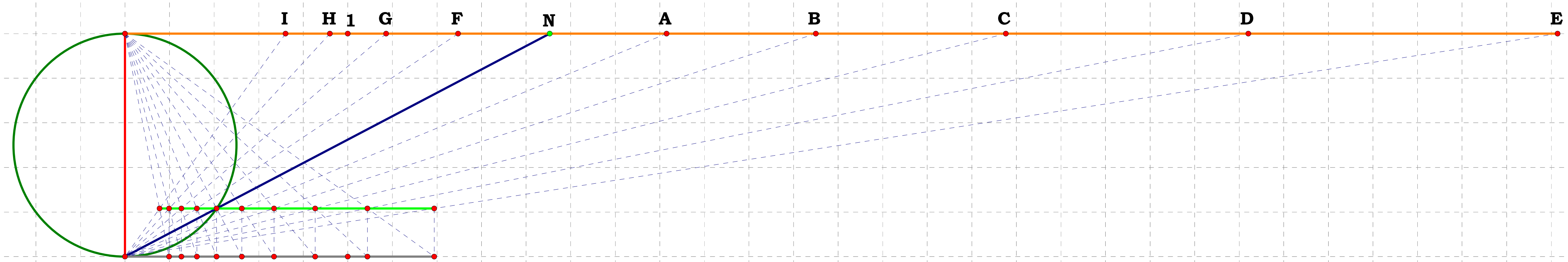
F = 0.29417
G = 0.17669
H = 0.10613
I = 0.06375

$$\frac{N}{N^2+1}\cdot\frac{N^2+1}{N^2}^{-1} - F = 0.00000$$

$$\frac{N}{N^2+1}\cdot\frac{N^2+1}{N^2}^{-2} - G = 0.00000$$

$$\frac{N}{N^2+1}\cdot\frac{N^2+1}{N^2}^{-3} - H = 0.00000$$

$$\frac{N}{N^2+1}\cdot\frac{N^2+1}{N^2}^{-4} - I = 0.00000$$



$$\frac{N^2+1}{N^2} = 1.27525$$

$$\frac{N^2+1}{N} = 2.43071$$

$$N+\frac{1}{N} = 2.43071$$

$$N = 1.90607$$

A = 2.43071
B = 3.09976
C = 3.95295
D = 5.04098
E = 6.42849

$$\frac{N^2+1}{N}\cdot\frac{N^2+1}{N^2}^{0} - A = 0.00000$$

$$\frac{N^2+1}{N}\cdot\frac{N^2+1}{N^2}^{1} - B = 0.00000$$

$$\frac{N^2+1}{N}\cdot\frac{N^2+1}{N^2}^{2} - C = 0.00000$$

$$\frac{N^2+1}{N}\cdot\frac{N^2+1}{N^2}^{3} - D = 0.00000$$

$$\frac{N^2+1}{N}\cdot\frac{N^2+1}{N^2}^{4} - E = 0.00000$$

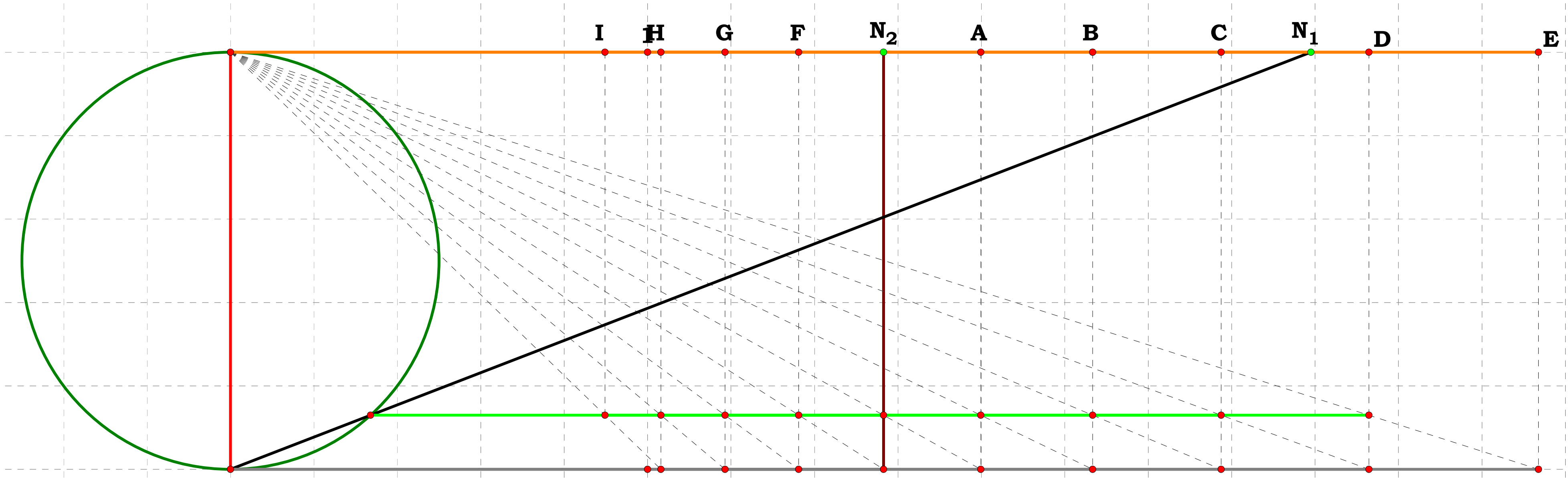
F = 1.49467
G = 1.17207
H = 0.91909
I = 0.72072

$$\frac{N^2+1}{N}\cdot\frac{N^2+1}{N^2}^{-2} - F = 0.00000$$

$$\frac{N^2+1}{N}\cdot\frac{N^2+1}{N^2}^{-3} - G = 0.00000$$

$$\frac{N^2+1}{N}\cdot\frac{N^2+1}{N^2}^{-4} - H = 0.00000$$

$$\frac{N^2+1}{N}\cdot\frac{N^2+1}{N^2}^{-5} - I = 0.00000$$



$$\frac{N_1^2+1}{N_1^2} = 1.14908$$

$$\frac{N_2\cdot(N_1^2+1)}{N_1^2} = 1.79864$$

$N_1 = 2.58997$

$N_2 = 1.56529$

A = 1.79864
B = 2.06677
C = 2.37488
D = 2.72892
E = 3.13573

$$\frac{N_2\cdot(N_1^2+1)}{N_1^2}\cdot{\frac{N_1^2+1}{N_1^2}}^{0} - A = 0.00000$$

$$\frac{N_2\cdot(N_1^2+1)}{N_1^2}\cdot{\frac{N_1^2+1}{N_1^2}}^{1} - B = 0.00000$$

$$\frac{N_2\cdot(N_1^2+1)}{N_1^2}\cdot{\frac{N_1^2+1}{N_1^2}}^{2} - C = 0.00000$$

$$\frac{N_2\cdot(N_1^2+1)}{N_1^2}\cdot{\frac{N_1^2+1}{N_1^2}}^{3} - D = 0.00000$$

$$\frac{N_2\cdot(N_1^2+1)}{N_1^2}\cdot{\frac{N_1^2+1}{N_1^2}}^{4} - E = 0.00000$$

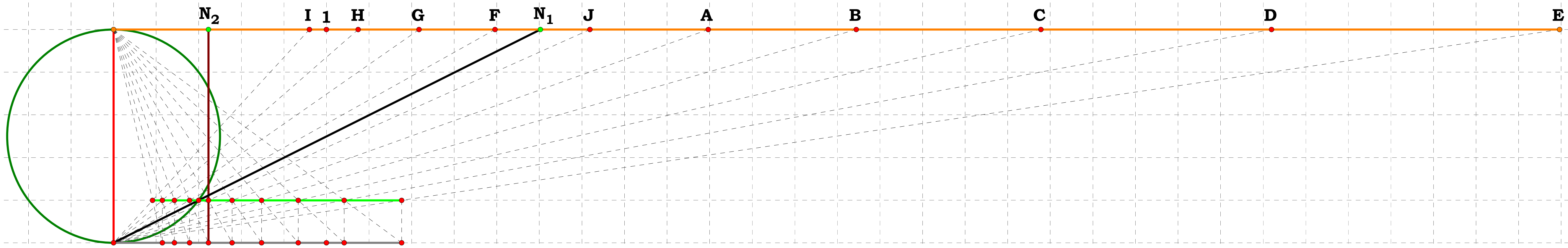
F = 1.36221
G = 1.18549
H = 1.03169
I = 0.89784

$$\frac{N_2\cdot(N_1^2+1)}{N_1^2}\cdot{\frac{N_1^2+1}{N_1^2}}^{-2} - F = 0.00000$$

$$\frac{N_2\cdot(N_1^2+1)}{N_1^2}\cdot{\frac{N_1^2+1}{N_1^2}}^{-3} - G = 0.00000$$

$$\frac{N_2\cdot(N_1^2+1)}{N_1^2}\cdot{\frac{N_1^2+1}{N_1^2}}^{-4} - H = 0.00000$$

$$\frac{N_2\cdot(N_1^2+1)}{N_1^2}\cdot{\frac{N_1^2+1}{N_1^2}}^{-5} - I = 0.00000$$



$N_2 \cdot (N_1^2+1) = 2.23722$

$\frac{N_1^2+1}{N_1^2} = 1.24872$

$N_1 = 2.00514$

$N_2 = 0.44561$

A = 2.79366
B = 3.48849
C = 4.35614
D = 5.43960
E = 6.79253

$(N_2 \cdot (N_1^2+1)) \cdot {\frac{N_1^2+1}{N_1^2}}^{1} - A = 0.00000$

$(N_2 \cdot (N_1^2+1)) \cdot {\frac{N_1^2+1}{N_1^2}}^{2} - B = 0.00000$

$(N_2 \cdot (N_1^2+1)) \cdot {\frac{N_1^2+1}{N_1^2}}^{3} - C = 0.00000$

$(N_2 \cdot (N_1^2+1)) \cdot {\frac{N_1^2+1}{N_1^2}}^{4} - D = 0.00000$

$(N_2 \cdot (N_1^2+1)) \cdot {\frac{N_1^2+1}{N_1^2}}^{5} - E = 0.00000$

J = 2.23722
F = 1.79161
G = 1.43476
H = 1.14898
I = 0.92013

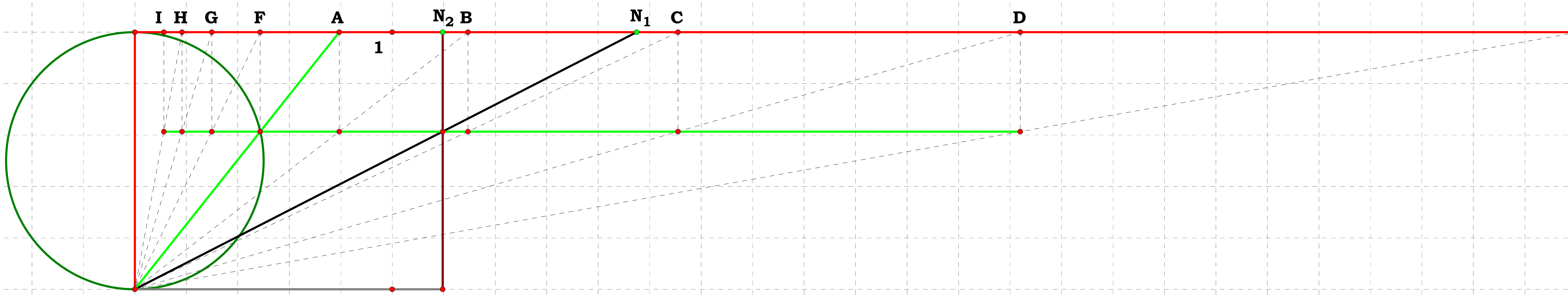
$(N_2 \cdot (N_1^2+1)) \cdot {\frac{N_1^2+1}{N_1^2}}^{0} - J = 0.00000$

$(N_2 \cdot (N_1^2+1)) \cdot {\frac{N_1^2+1}{N_1^2}}^{-1} - F = 0.00000$

$(N_2 \cdot (N_1^2+1)) \cdot {\frac{N_1^2+1}{N_1^2}}^{-2} - G = 0.00000$

$(N_2 \cdot (N_1^2+1)) \cdot {\frac{N_1^2+1}{N_1^2}}^{-3} - H = 0.00000$

$(N_2 \cdot (N_1^2+1)) \cdot {\frac{N_1^2+1}{N_1^2}}^{-4} - I = 0.00000$



$$\frac{N_1}{N_2} = 1.63024$$

$$\sqrt{\frac{N_1-N_2}{N_2}} = 0.79388$$

$N_1 = 1.94939$

$N_2 = 1.19577$

A = 0.79388

B = 1.29421

C = 2.10988

D = 3.43962

E = 5.60741

$$\sqrt{\frac{N_1-N_2}{N_2}} \cdot \frac{N_1}{N_2}^{0} - A = 0.00000$$

$$\sqrt{\frac{N_1-N_2}{N_2}} \cdot \frac{N_1}{N_2}^{1} - B = 0.00000$$

$$\sqrt{\frac{N_1-N_2}{N_2}} \cdot \frac{N_1}{N_2}^{2} - C = 0.00000$$

$$\sqrt{\frac{N_1-N_2}{N_2}} \cdot \frac{N_1}{N_2}^{3} - D = 0.00000$$

$$\sqrt{\frac{N_1-N_2}{N_2}} \cdot \frac{N_1}{N_2}^{4} - E = 0.00000$$

F = 0.48697

G = 0.29871

H = 0.18323

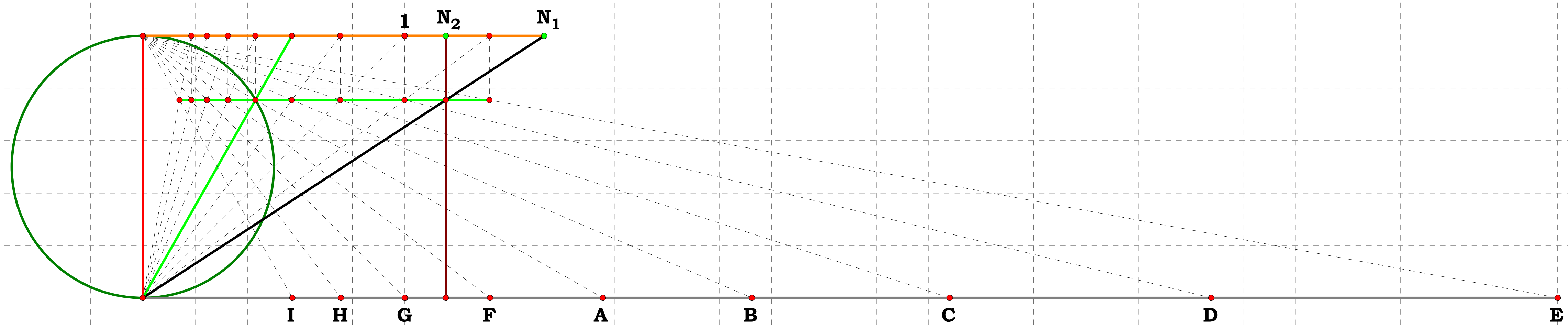
I = 0.11239

$$\sqrt{\frac{N_1-N_2}{N_2}} \cdot \frac{N_1}{N_2}^{-1} - F = 0.00000$$

$$\sqrt{\frac{N_1-N_2}{N_2}} \cdot \frac{N_1}{N_2}^{-2} - G = 0.00000$$

$$\sqrt{\frac{N_1-N_2}{N_2}} \cdot \frac{N_1}{N_2}^{-3} - H = 0.00000$$

$$\sqrt{\frac{N_1-N_2}{N_2}} \cdot \frac{N_1}{N_2}^{-4} - I = 0.00000$$



$$\sqrt{\frac{N_2}{N_1-N_2}} = 1.75589$$

$$\frac{N_1}{N_2} = 1.32434$$

$N_1 = 1.53175$

$N_2 = 1.15661$

A = 1.75589
B = 2.32540
C = 3.07963
D = 4.07849
E = 5.40133

$$\sqrt{\frac{N_2}{N_1-N_2}}\cdot\frac{N_1}{N_2}^{0} - A = 0.00000$$

$$\sqrt{\frac{N_2}{N_1-N_2}}\cdot\frac{N_1}{N_2}^{1} - B = 0.00000$$

$$\sqrt{\frac{N_2}{N_1-N_2}}\cdot\frac{N_1}{N_2}^{2} - C = 0.00000$$

$$\sqrt{\frac{N_2}{N_1-N_2}}\cdot\frac{N_1}{N_2}^{3} - D = 0.00000$$

$$\sqrt{\frac{N_2}{N_1-N_2}}\cdot\frac{N_1}{N_2}^{4} - E = 0.00000$$

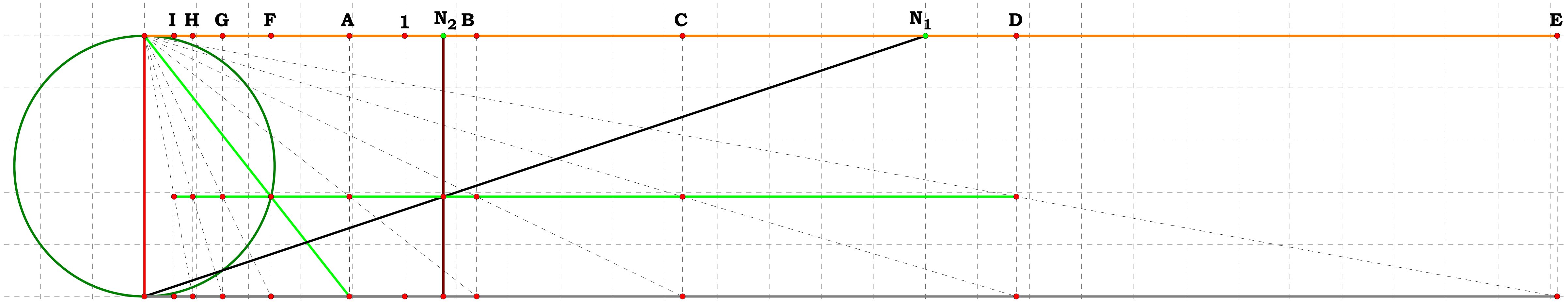
F = 1.32585
G = 1.00114
H = 0.75595
I = 0.57081

$$\sqrt{\frac{N_2}{N_1-N_2}}\cdot\frac{N_1}{N_2}^{-1} - F = 0.00000$$

$$\sqrt{\frac{N_2}{N_1-N_2}}\cdot\frac{N_1}{N_2}^{-2} - G = 0.00000$$

$$\sqrt{\frac{N_2}{N_1-N_2}}\cdot\frac{N_1}{N_2}^{-3} - H = 0.00000$$

$$\sqrt{\frac{N_2}{N_1-N_2}}\cdot\frac{N_1}{N_2}^{-4} - I = 0.00000$$



$$\sqrt{\frac{N_2}{N_1-N_2}} = 0.78754$$

$$\frac{N_1}{N_1-N_2} = 1.62022$$

$N_1 = 3.00000$

$N_2 = 1.14840$

A = 0.78754
B = 1.27600
C = 2.06740
D = 3.34965
E = 5.42718

$$\sqrt{\frac{N_2}{N_1-N_2}}\cdot\frac{N_1}{N_1-N_2}^{0} - A = 0.00000$$

$$\sqrt{\frac{N_2}{N_1-N_2}}\cdot\frac{N_1}{N_1-N_2}^{1} - B = 0.00000$$

$$\sqrt{\frac{N_2}{N_1-N_2}}\cdot\frac{N_1}{N_1-N_2}^{2} - C = 0.00000$$

$$\sqrt{\frac{N_2}{N_1-N_2}}\cdot\frac{N_1}{N_1-N_2}^{3} - D = 0.00000$$

$$\sqrt{\frac{N_2}{N_1-N_2}}\cdot\frac{N_1}{N_1-N_2}^{4} - E = 0.00000$$

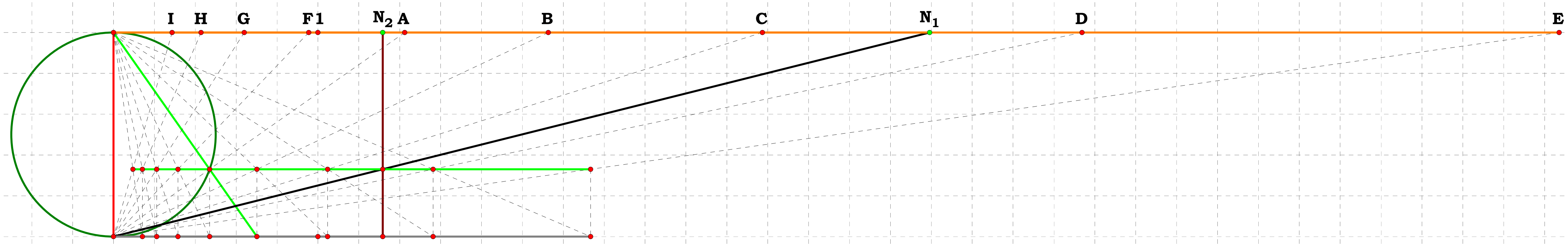
F = 0.48607
G = 0.30000
H = 0.18516
I = 0.11428

$$\sqrt{\frac{N_2}{N_1-N_2}}\cdot\frac{N_1}{N_1-N_2}^{-1} - F = 0.00000$$

$$\sqrt{\frac{N_2}{N_1-N_2}}\cdot\frac{N_1}{N_1-N_2}^{-2} - G = 0.00000$$

$$\sqrt{\frac{N_2}{N_1-N_2}}\cdot\frac{N_1}{N_1-N_2}^{-3} - H = 0.00000$$

$$\sqrt{\frac{N_2}{N_1-N_2}}\cdot\frac{N_1}{N_1-N_2}^{-4} - I = 0.00000$$



$$\sqrt{\frac{N_1-N_2}{N_2}} = 1.42482$$

$$\frac{N_1}{N_1-N_2} = 1.49258$$

$N_1 = 3.99177$

$N_2 = 1.31737$

A = 1.42482
B = 2.12666
C = 3.17422
D = 4.73779
E = 7.07155

$$\sqrt{\frac{N_1-N_2}{N_2}} \cdot \frac{N_1}{N_1-N_2}^{0} - A = 0.00000$$

$$\sqrt{\frac{N_1-N_2}{N_2}} \cdot \frac{N_1}{N_1-N_2}^{1} - B = 0.00000$$

$$\sqrt{\frac{N_1-N_2}{N_2}} \cdot \frac{N_1}{N_1-N_2}^{2} - C = 0.00000$$

$$\sqrt{\frac{N_1-N_2}{N_2}} \cdot \frac{N_1}{N_1-N_2}^{3} - D = 0.00000$$

$$\sqrt{\frac{N_1-N_2}{N_2}} \cdot \frac{N_1}{N_1-N_2}^{4} - E = 0.00000$$

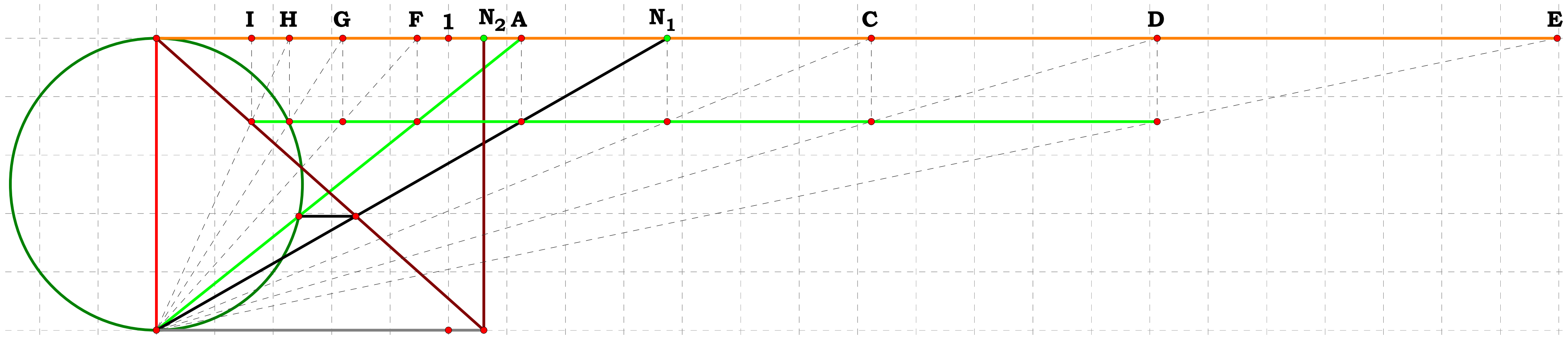
F = 0.95460
G = 0.63956
H = 0.42849
I = 0.28708

$$\sqrt{\frac{N_1-N_2}{N_2}} \cdot \frac{N_1}{N_1-N_2}^{-1} - F = 0.00000$$

$$\sqrt{\frac{N_1-N_2}{N_2}} \cdot \frac{N_1}{N_1-N_2}^{-2} - G = 0.00000$$

$$\sqrt{\frac{N_1-N_2}{N_2}} \cdot \frac{N_1}{N_1-N_2}^{-3} - H = 0.00000$$

$$\sqrt{\frac{N_1-N_2}{N_2}} \cdot \frac{N_1}{N_1-N_2}^{-4} - I = 0.00000$$



$\sqrt{\frac{N_1}{N_2}} = 1.24930$

$\sqrt{N_1 \cdot N_2} = 1.39967$

$N_2 = 1.12036$

A = 1.24930
N_1 = 1.74861
C = 2.44748
D = 3.42566
E = 4.79479

$\sqrt{\frac{N_1}{N_2}} \cdot \sqrt{N_1 \cdot N_2}^0 - A = 0.00000$

$\sqrt{\frac{N_1}{N_2}} \cdot \sqrt{N_1 \cdot N_2}^1 - N_1 = 0.00000$

$\sqrt{\frac{N_1}{N_2}} \cdot \sqrt{N_1 \cdot N_2}^2 - C = 0.00000$

$\sqrt{\frac{N_1}{N_2}} \cdot \sqrt{N_1 \cdot N_2}^3 - D = 0.00000$

$\sqrt{\frac{N_1}{N_2}} \cdot \sqrt{N_1 \cdot N_2}^4 - E = 0.00000$

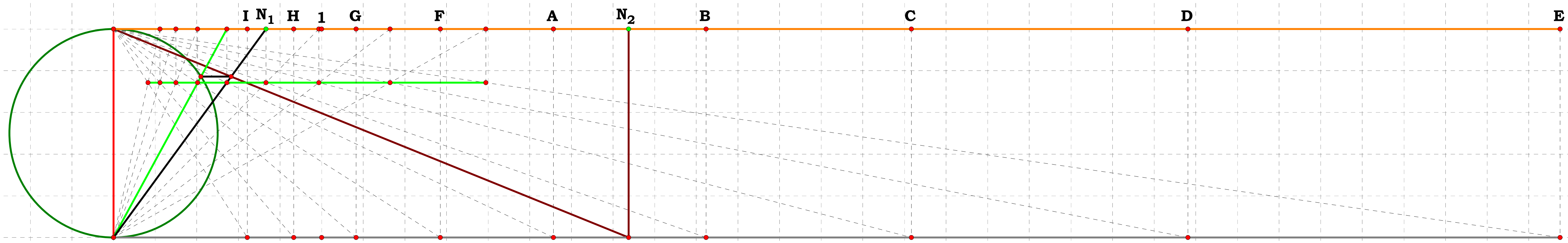
F = 0.89257
G = 0.63770
H = 0.45561
I = 0.32551

$\sqrt{\frac{N_1}{N_2}} \cdot \sqrt{N_1 \cdot N_2}^{-1} - F = 0.00000$

$\sqrt{\frac{N_1}{N_2}} \cdot \sqrt{N_1 \cdot N_2}^{-2} - G = 0.00000$

$\sqrt{\frac{N_1}{N_2}} \cdot \sqrt{N_1 \cdot N_2}^{-3} - H = 0.00000$

$\sqrt{\frac{N_1}{N_2}} \cdot \sqrt{N_1 \cdot N_2}^{-4} - I = 0.00000$



$$\frac{N_1}{\sqrt{N_1 \cdot N_2 - 1}} = 2.11403$$

$$\sqrt{N_1 \cdot N_2} = 1.34658$$

$N_1 = 0.73268$

$N_2 = 2.47486$

$A = 2.11403$

$B = 2.84670$

$C = 3.83331$

$D = 5.16185$

$E = 6.95084$

$$\frac{N_1}{\sqrt{N_1 \cdot N_2 - 1}} \cdot \sqrt{N_1 \cdot N_2}^{0} - A = 0.00000$$

$$\frac{N_1}{\sqrt{N_1 \cdot N_2 - 1}} \cdot \sqrt{N_1 \cdot N_2}^{1} - B = 0.00000$$

$$\frac{N_1}{\sqrt{N_1 \cdot N_2 - 1}} \cdot \sqrt{N_1 \cdot N_2}^{2} - C = 0.00000$$

$$\frac{N_1}{\sqrt{N_1 \cdot N_2 - 1}} \cdot \sqrt{N_1 \cdot N_2}^{3} - D = 0.00000$$

$$\frac{N_1}{\sqrt{N_1 \cdot N_2 - 1}} \cdot \sqrt{N_1 \cdot N_2}^{4} - E = 0.00000$$

$F = 1.56992$

$G = 1.16586$

$H = 0.86580$

$I = 0.64296$

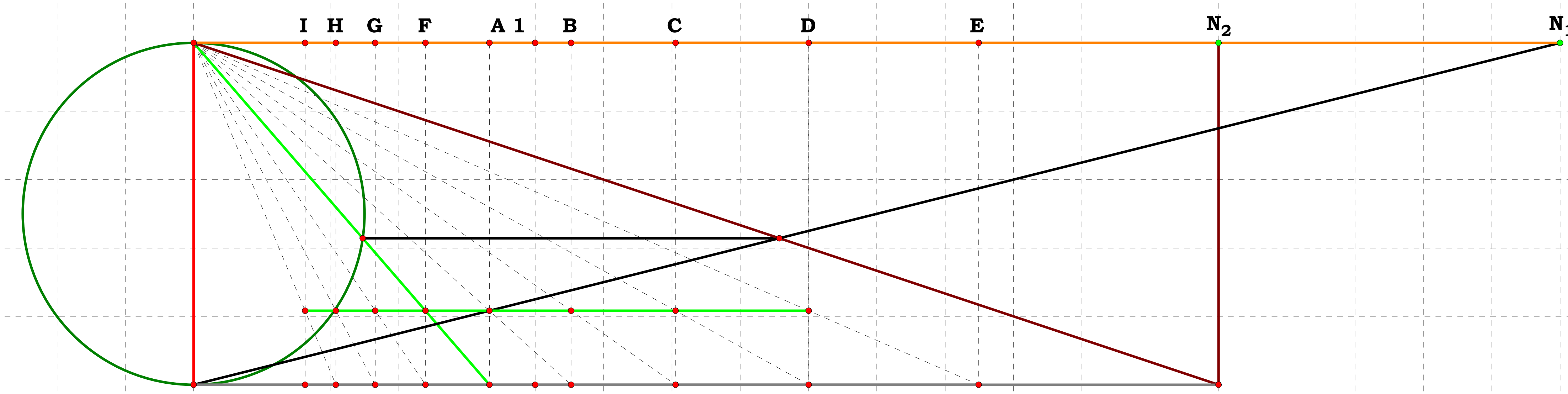
$$\frac{N_1}{\sqrt{N_1 \cdot N_2 - 1}} \cdot \sqrt{N_1 \cdot N_2}^{-1} - F = 0.00000$$

$$\frac{N_1}{\sqrt{N_1 \cdot N_2 - 1}} \cdot \sqrt{N_1 \cdot N_2}^{-2} - G = 0.00000$$

$$\frac{N_1}{\sqrt{N_1 \cdot N_2 - 1}} \cdot \sqrt{N_1 \cdot N_2}^{-3} - H = 0.00000$$

$$\frac{N_1}{\sqrt{N_1 \cdot N_2 - 1}} \cdot \sqrt{N_1 \cdot N_2}^{-4} - I = 0.00000$$

N[1] -> 0
N[1] -> 1
N[1] -> 2
N[1] -> 3
N[1] -> 4
N[1] -> 5
N[1] -> 6
N[1] -> 7
N[1] -> 8
N[1] -> 9
N[1] -> 10
N[1] -> 11
N[2] -> 0
N[2] -> 1
N[2] -> 2
N[2] -> 3
N[2] -> 4
N[2] -> 5
N[2] -> 6
N[2] -> 7
N[2] -> 8
N[2] -> 9
N[2] -> 10
N[2] -> 11
Hide Action Buttons



$\sqrt{\frac{N_2}{N_1}} = 0.86603$

$\frac{B}{A} = 1.27633$

$N_1 = 4.00000$

$N_2 = 3.00000$

$\frac{N_2}{N_1} = 0.75000$

A = 0.86603
B = 1.10534
C = 1.41078
D = 1.80063
E = 2.29820

$\sqrt{\frac{N_2}{N_1}} - A = 0.00000$

$\sqrt{\frac{N_2}{N_1}} \cdot \frac{B}{A} - B = 0.00000$

$\sqrt{\frac{N_2}{N_1}} \cdot \frac{B}{A}^2 - C = 0.00000$

$\sqrt{\frac{N_2}{N_1}} \cdot \frac{B}{A}^3 - D = 0.00000$

$\sqrt{\frac{N_2}{N_1}} \cdot \frac{B}{A}^4 - E = 0.00000$

F = 0.67853
G = 0.53162
H = 0.41652
I = 0.32634

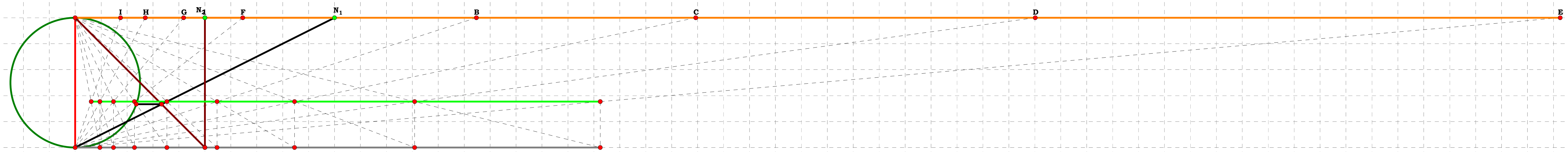
$\sqrt{\frac{N_2}{N_1}} \cdot \frac{B}{A}^{-1} - F = 0.00000$

$\sqrt{\frac{N_2}{N_1}} \cdot \frac{B}{A}^{-2} - G = 0.00000$

$\sqrt{\frac{N_2}{N_1}} \cdot \frac{B}{A}^{-3} - H = 0.00000$

$\sqrt{\frac{N_2}{N_1}} \cdot \frac{B}{A}^{-4} - I = 0.00000$

N[1] -> 0
N[1] -> 1
N[1] -> 2
N[1] -> 3
N[1] -> 4
N[1] -> 5
N[1] -> 6
N[1] -> 7
N[1] -> 8
N[1] -> 9
N[1] -> 10
N[1] -> 11
N[2] -> 0
N[2] -> 1
N[2] -> 2
N[2] -> 3
N[2] -> 4
N[2] -> 5
N[2] -> 6
N[2] -> 7
N[2] -> 8
N[2] -> 9
N[2] -> 10
N[2] -> 11
Hide Action Buttons



$\frac{C}{B} = 1.54692$

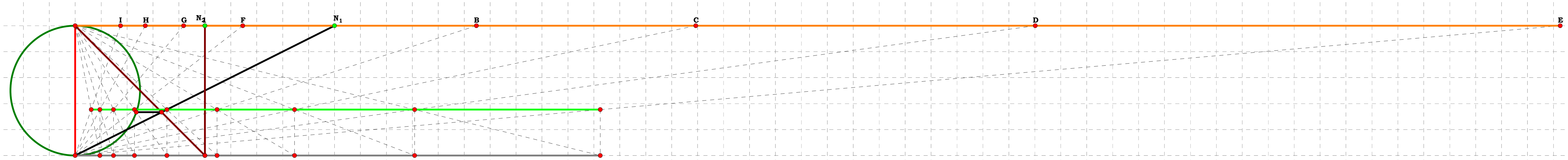
$\frac{D}{C} = 1.54692$

$\sqrt{2} = 1.41421$

$N_1 = 2.00000$
$N_2 = 1.00000$

B = 3.09384
C = 4.78591
D = 7.40341
E = 11.45247
F = 1.29289
G = 0.83579
H = 0.54029
I = 0.34927

N[1] -> 0
N[1] -> 1
N[1] -> 2
N[1] -> 3
N[1] -> 4
N[1] -> 5
N[1] -> 6
N[1] -> 7
N[1] -> 8
N[1] -> 9
N[1] -> 10
N[1] -> 11
N[2] -> 0
N[2] -> 1
N[2] -> 2
N[2] -> 3
N[2] -> 4
N[2] -> 5
N[2] -> 6
N[2] -> 7
N[2] -> 8
N[2] -> 9
N[2] -> 10
N[2] -> 11
Hide Action Buttons



$\frac{C}{B} = 1.54692$

$\frac{D}{C} = 1.54692$

$\sqrt{2} = 1.41421$

$N_1 = 2.00000$
$N_2 = 1.00000$

B = 3.09384
C = 4.78591
D = 7.40341
E = 11.45247
F = 1.29289
G = 0.83579
H = 0.54029
I = 0.34927

Index is Base 0

Indexs: $I_{ndx} = 1$ $C_{indx} = 13.00000$

Number of div. by difference at an index.

$$\frac{(I_{ndx} \cdot N_2 - N_1 \cdot N_3) \cdot ((I_{ndx} \cdot N_2 + N_2) - N_1 \cdot N_3)}{N_1 \cdot N_2} = 105.00000$$

Total number of fractions.

$$\frac{N_1 \cdot (N_3 - 1)}{N_2} = 14.00000 \qquad \frac{N_1 \cdot N_3 - N_1}{N_2} = 14.00000$$

Fraction at Index:

Num: $N_1 \cdot N_3 - I_{ndx} \cdot N_2 = 30.00000$

Den: $N_1 = 4.00000$

$$\frac{(N_1 \cdot N_3 - I_{ndx} \cdot N_2)}{N_1} = 7.50000$$

Fraction at Compliment:

$$\frac{N_1 + N_2 \cdot I_{ndx}}{N_1} = 1.50000$$

$$\frac{(N_1 \cdot N_3 - I_{ndx} \cdot N_2)}{N_1} + \frac{N_1 + N_2 \cdot I_{ndx}}{N_1} = 9.00000$$

N[1] -> 0
N[1] -> 1
N[1] -> 2
N[1] -> 3
N[1] -> 4
N[1] -> 5
N[1] -> 6
N[1] -> 7
N[1] -> 8
N[1] -> 9
N[1] -> 10
N[1] -> 11

N[2] -> 0
N[2] -> 1
N[2] -> 2
N[2] -> 3
N[2] -> 4
N[2] -> 5
N[2] -> 6
N[2] -> 7
N[2] -> 8
N[2] -> 9
N[2] -> 10
N[2] -> 11

$N_1 = 4.00000$

$N_2 = 2.00000$

$N_3 = 8.00000$

Present 2 Actions

$$\frac{N_3}{N_3 + 1} = 0.88889$$

N[2] -> 0
N[2] -> 1
N[2] -> 2
N[2] -> 3
N[2] -> 4
N[2] -> 5
N[2] -> 6
N[2] -> 7
N[2] -> 8
N[2] -> 9
N[2] -> 10
N[2] -> 11

$$\frac{N_1 \cdot N_3 - N_1 - I_{ndx} \cdot N_2}{N_2} = 13.00000$$

$\frac{N_3}{1} = 8.00000$ $\frac{N_3}{H} = 4.00000$

$\frac{N_3}{A} = 7.50000$ $\frac{N_3}{I} = 3.50000$

$\frac{N_3}{B} = 7.00000$ $\frac{N_3}{J} = 3.00000$

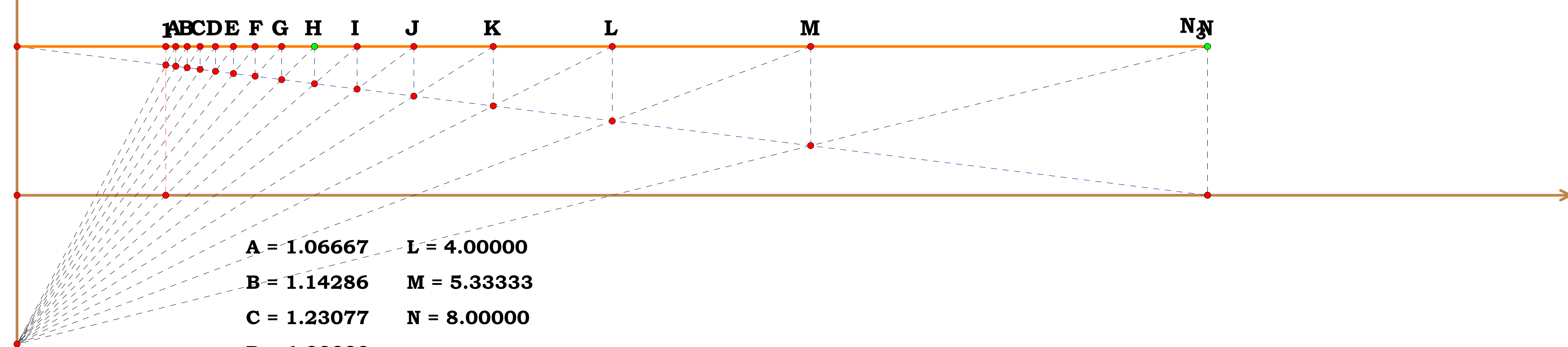
$\frac{N_3}{C} = 6.50000$ $\frac{N_3}{K} = 2.50000$

$\frac{N_3}{D} = 6.00000$ $\frac{N_3}{L} = 2.00000$

$\frac{N_3}{E} = 5.50000$ $\frac{N_3}{M} = 1.50000$

$\frac{N_3}{F} = 5.00000$ $\frac{N_3}{N} = 1.00000$

$\frac{N_3}{G} = 4.50000$



A = 1.06667
B = 1.14286
C = 1.23077
D = 1.33333
E = 1.45455
F = 1.60000
G = 1.77778
H = 2.00000
I = 2.28571
J = 2.66667
K = 3.20000
L = 4.00000
M = 5.33333
N = 8.00000

Indexs: Index = 0 C_{indx} = 8.00

Number of div. by difference at an index.

$$\frac{(Index\cdot(1-N_3)+N_1\cdot N_2\cdot N_3)\cdot((N_3+Index\cdot(1-N_3)+N_1\cdot N_2\cdot N_3)-1)}{N_1\cdot N_2\cdot(N_3-1)} = 81.14286$$

len of frac. $\frac{N_1\cdot N_2\cdot N_3}{N_1\cdot N_2\cdot N_3-Index\cdot(N_3-1)} = 1.00000$

Total number of fractions.

$N_1\cdot N_2 = 8.00000$

Fraction at Index:

Num: $N_1\cdot N_2\cdot N_3-Index\cdot(N_3-1) = 64.00000$

Den: $N_1\cdot N_2 = 8.00000$

$$\frac{(N_1\cdot N_2\cdot N_3-Index\cdot(N_3-1))}{(N_1\cdot N_2)} = 8.00000$$

Fraction at Compliment:

$$\frac{N_1\cdot N_2\cdot N_3-C_{indx}\cdot(N_3-1)}{N_1\cdot N_2} = 1.00000$$

$$\frac{(N_3-C_{indx}\cdot N_3-Index\cdot N_3)+2\cdot N_1\cdot N_2\cdot N_3}{N_1\cdot N_2} = 9.00000$$

N[1] -> 0 N[1] -> 1 N[1] -> 2 N[1] -> 3 N[1] -> 4 N[1] -> 5 N[1] -> 6 N[1] -> 7 N[1] -> 8 N[1] -> 9 N[1] -> 10 N[1] -> 11

N[2] -> 0 N[2] -> 1 N[2] -> 2 N[2] -> 3 N[2] -> 4 N[2] -> 5 N[2] -> 6 N[2] -> 7 N[2] -> 8 N[2] -> 9 N[2] -> 10 N[2] -> 11

N_1 = 4.00000
N_2 = 2.00000
N_3 = 8.00000

N[3] -> 0 N[3] -> 1 N[3] -> 2 N[3] -> 3 N[3] -> 4 N[3] -> 5 N[3] -> 6 N[3] -> 7 N[3] -> 8 N[3] -> 9 N[3] -> 10 N[3] -> 11

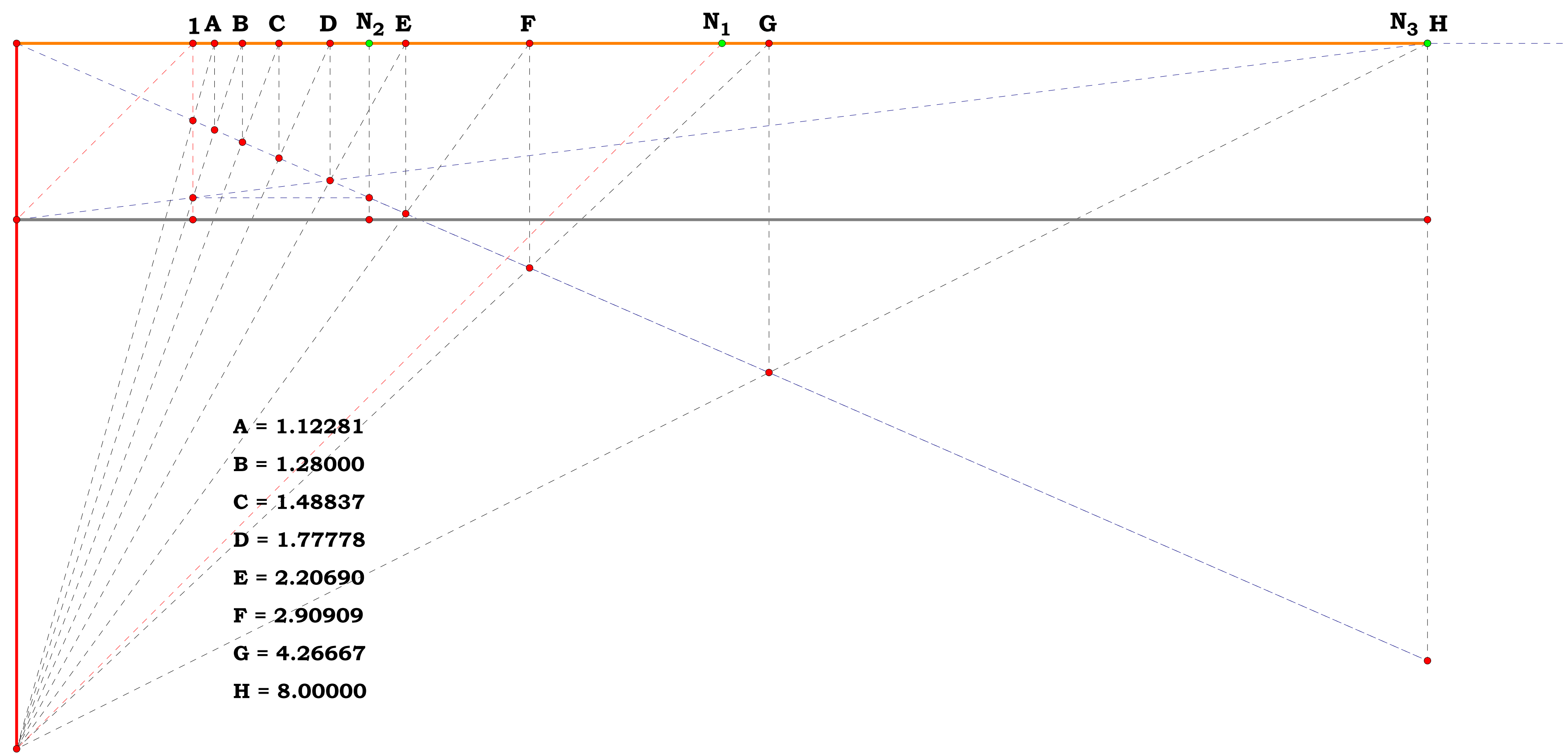
$\frac{N_3}{1} = 8.00000$ $\frac{N_3}{E} = 3.62500$

$\frac{N_3}{A} = 7.12500$ $\frac{N_3}{F} = 2.75000$

$\frac{N_3}{B} = 6.25000$ $\frac{N_3}{G} = 1.87500$

$\frac{N_3}{C} = 5.37500$ $\frac{N_3}{H} = 1.00000$

$\frac{N_3}{D} = 4.50000$



A = 1.12281
B = 1.28000
C = 1.48837
D = 1.77778
E = 2.20690
F = 2.90909
G = 4.26667
H = 8.00000

$i_{dx} = 1$

$$\frac{(i_{dx}\cdot(N_2-N_0\cdot N_2)+N_0\cdot N_1\cdot N_3)\cdot(((N_2-i_{dx}\cdot N_2-N_0\cdot N_2)+i_{dx}\cdot N_0\cdot N_2)-N_0\cdot N_1\cdot N_3)}{N_1\cdot N_3\cdot(((N_2+i_{dx}\cdot(N_2-N_0\cdot N_2))-i_{dx}\cdot N_2-N_0\cdot N_2)+i_{dx}\cdot N_0\cdot N_2)} = 60.00000$$

$$\frac{N_0\cdot N_1\cdot N_3}{i_{dx}\cdot(N_2-N_2\cdot N_0)+N_0\cdot N_1\cdot N_3} = 1.06667$$

$$\frac{N_1\cdot N_3-i_{dx}\cdot N_2\cdot(1-N_0)}{N_1\cdot N_3} = 1.25000$$

$$\frac{(i_{dx}\cdot(N_2-N_0\cdot N_2)+N_0\cdot N_1\cdot N_3)}{(N_1\cdot N_3)}+\frac{N_1\cdot N_3-i_{dx}\cdot N_2\cdot(1-N_0)}{N_1\cdot N_3} = 5.00000$$

Total number of fractions.

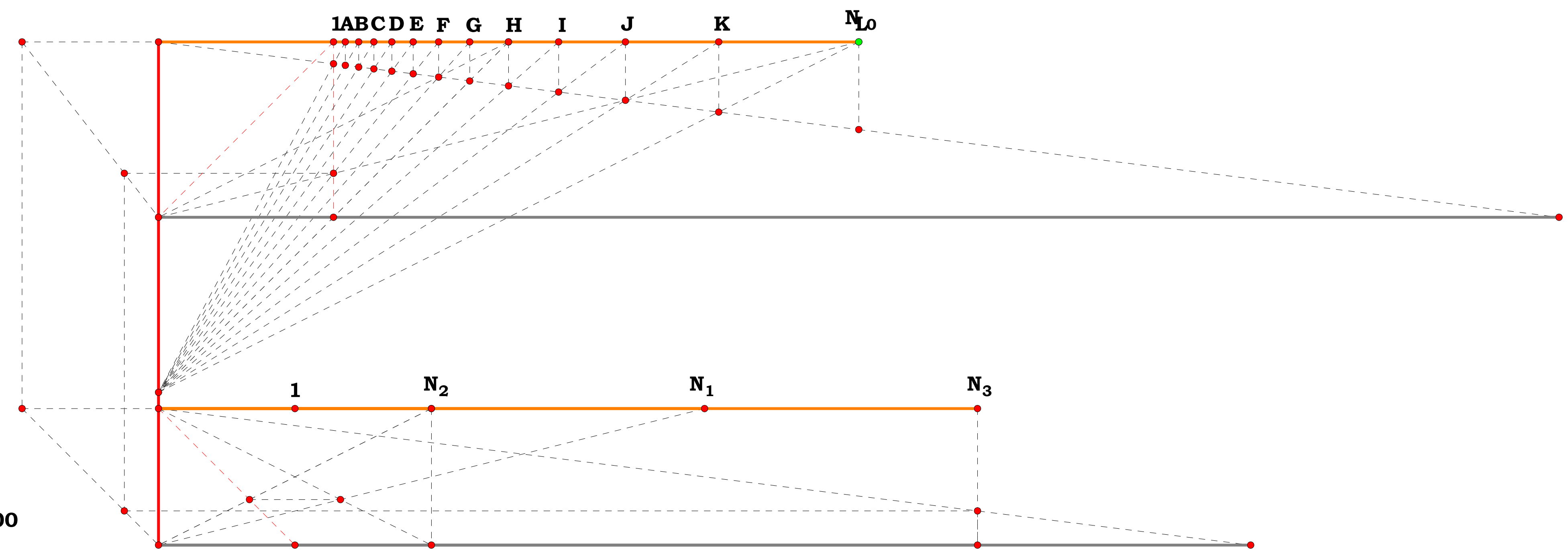
$$\frac{N_1\cdot N_3}{N_2} = 12.00000$$

Fraction at Index:

Num: $i_{dx}\cdot(N_2-N_0\cdot N_2)+N_0\cdot N_1\cdot N_3 = 90.00000$

Den: $N_1\cdot N_3 = 24.00000$

$$\frac{(i_{dx}\cdot(N_2-N_0\cdot N_2)+N_0\cdot N_1\cdot N_3)}{(N_1\cdot N_3)} = 3.75000$$



$N_0 = 4.00000$ $N_2 = 2.00000$

$N_1 = 4.00000$ $N_3 = 6.00000$ $N_1\cdot N_3 = 24.00000$

N[1] -> 0
N[1] -> 1
N[1] -> 2
N[1] -> 3
N[1] -> 4
N[1] -> 5
N[1] -> 6
N[1] -> 7
N[1] -> 8
N[1] -> 9
N[1] -> 10
N[1] -> 11

N[2] -> 0
N[2] -> 1
N[2] -> 2
N[2] -> 3
N[2] -> 4
N[2] -> 5
N[2] -> 6
N[2] -> 7
N[2] -> 8
N[2] -> 9
N[2] -> 10
N[2] -> 11

N[3] -> 0
N[3] -> 1
N[3] -> 2
N[3] -> 3
N[3] -> 4
N[3] -> 5
N[3] -> 6
N[3] -> 7
N[3] -> 8
N[3] -> 9
N[3] -> 10
N[3] -> 11

N [0] -> 0
N [0] -> 1
N [0] -> 2
N [0] -> 3
N [0] -> 4
N [0] -> 5
N [0] -> 6
N [0] -> 7
N [0] -> 8
N [0] -> 9
N [0]-> 10
N [0] -> 11

A = 1.06667
B = 1.14286
C = 1.23077
D = 1.33333
E = 1.45455
F = 1.60000
G = 1.77778
H = 2.00000
I = 2.28571
J = 2.66667
K = 3.20000
L = 4.00000

$\frac{N_0}{A} = 3.75000$ $\frac{N_0}{G} = 2.25000$

$\frac{N_0}{B} = 3.50000$ $\frac{N_0}{H} = 2.00000$

$\frac{N_0}{C} = 3.25000$ $\frac{N_0}{I} = 1.75000$

$\frac{N_0}{D} = 3.00000$ $\frac{N_0}{J} = 1.50000$

$\frac{N_0}{E} = 2.75000$ $\frac{N_0}{K} = 1.25000$

$\frac{N_0}{F} = 2.50000$ $\frac{N_0}{L} = 1.00000$

N -> 0

N -> 1

N -> 2

N -> 3

N -> 4

N -> 5

N -> 6

N -> 7

N -> 8

N -> 9

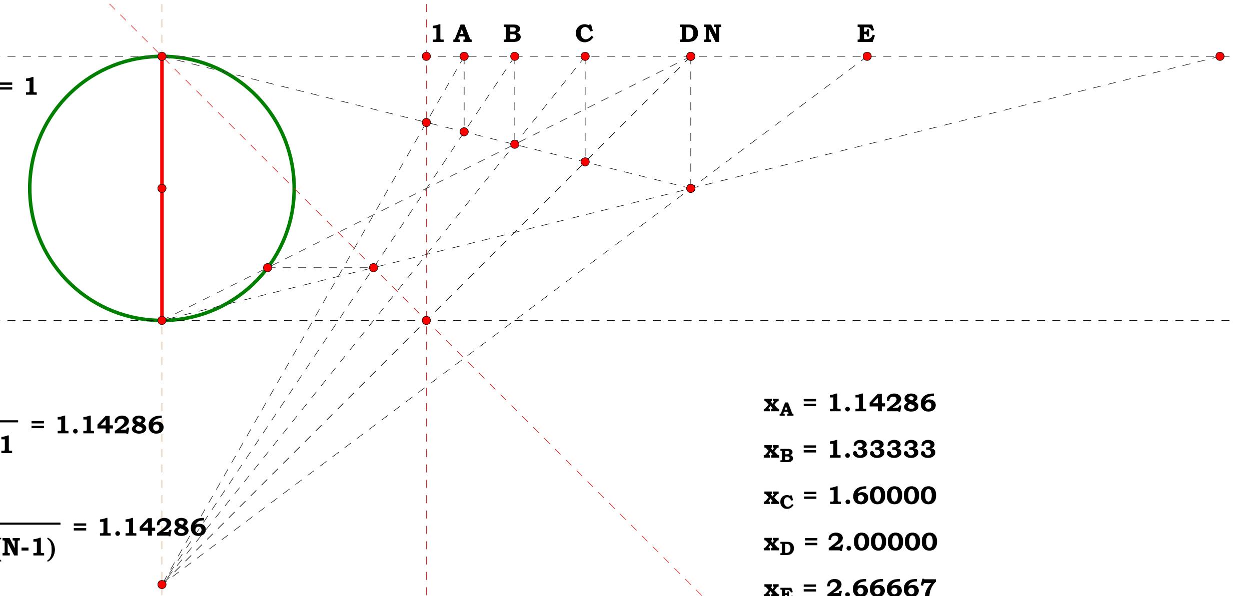
N -> 10

N -> 11

$N = 2.00000$

Show Objects

$In_{dx} = 1$



$\frac{N^3}{(N^3-N)+1} = 1.14286$

$\frac{N^3}{N^3-In_{dx}\cdot(N-1)} = 1.14286$

$N^3 = 8.00000$

$N^3-In_{dx}\cdot(N-1) = 7.00000$

$N^2 = 4.00000$

$x_A = 1.14286$

$x_B = 1.33333$

$x_C = 1.60000$

$x_D = 2.00000$

$x_E = 2.66667$

Circle | Points | Circle | Points | Circle | Points

Show Lines | Hide Objects | Show Lines | Hide Objects | Show Lines | Hide Objects

0	0	0	0	0	0
1	1	1	1	1	1
2	2	2	2	2	2
3	3	3	3	3	3
4	4	4	4	4	4
5	5	5	5	5	5
6	6	6	6	6	6
7	7	7	7	7	7
8	8	8	8	8	8
9	9	9	9	9	9
10	10	10	10	10	10
11	11	11	11	11	11
12	12	12	12	12	12
13	13	13	13	13	13
14	14	14	14	14	14
15	15	15	15	15	15

$In_{dx} = 0$

$\frac{26.25000}{26.25000} = 1.00000$

$B_3 = 6.17647$

$\frac{N_1}{B_3 - N_1} + 1 = 5.25000$

$\frac{7}{3.75} = 1.86667$

A = 1.03960 | J = 1.61538 | S = 3.62069
B = 1.08247 | K = 1.72131 | T = 4.20000
C = 1.12903 | L = 1.84211 | U = 5.00000
D = 1.17978 | M = 1.98113
E = 1.23529 | N = 2.14286
F = 1.29630 | O = 2.33333
G = 1.36364 | P = 2.56098
H = 1.43836 | Q = 2.83784
I = 1.52174 | R = 3.18182

$N_1 = 5.00000$

$N_2 = 0.00000$

$n_a = 7.00000$

$n_b = 5.00000$

$r_{da} = 1.40000$

$\frac{n_a}{n_b} = 1.40000$

$N_1 \cdot \frac{n_a}{n_b} = 7.00000$

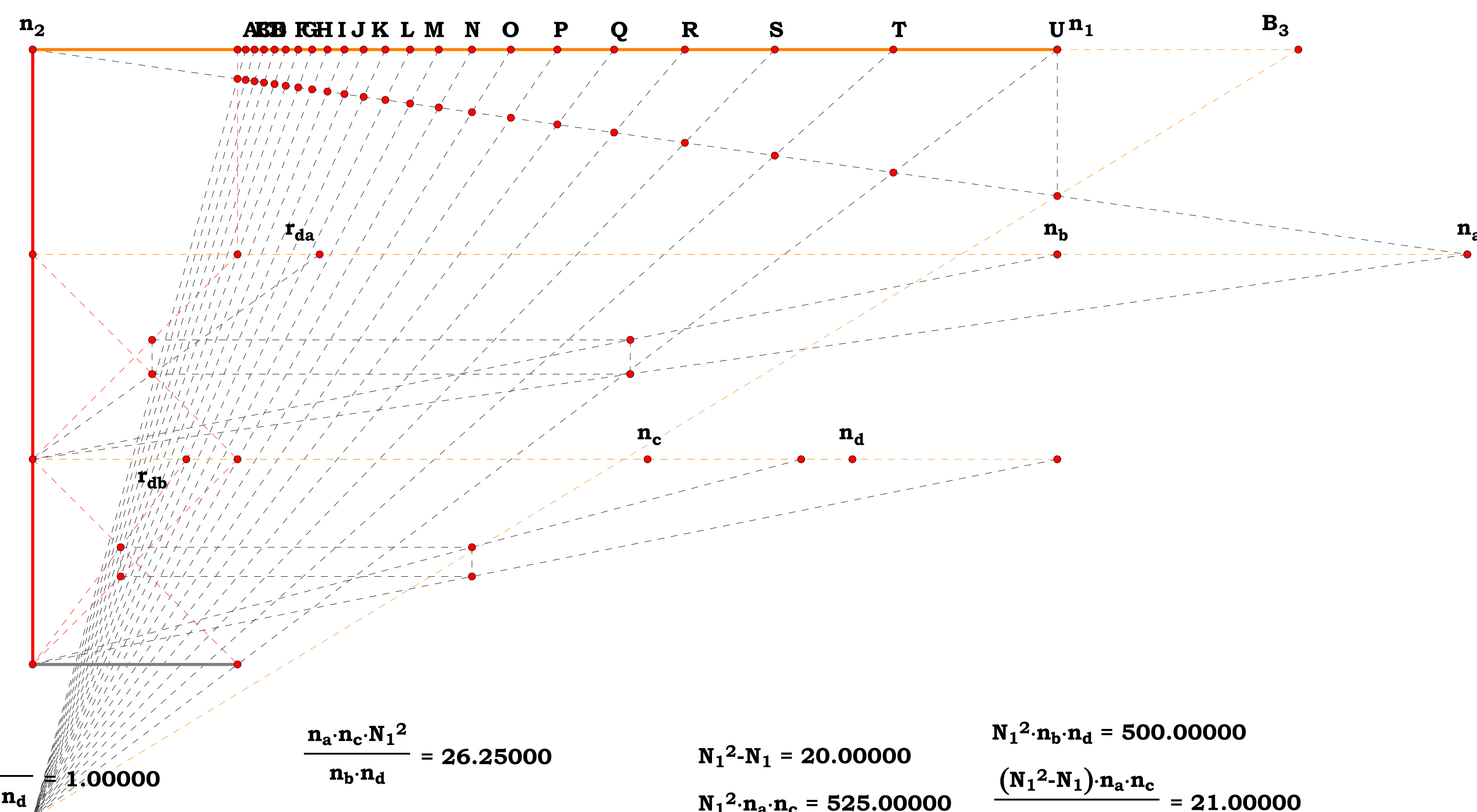
$n_c = 3.00000$

$n_d = 4.00000$

$r_{db} = 0.75000$

$\frac{n_c}{n_d} = 0.75000$

$\frac{n_c}{n_d} \cdot N_1 = 3.75000$



$\frac{N_1^2 \cdot n_a \cdot n_c}{N_1^2 \cdot n_a \cdot n_c - In_{dx} \cdot n_b \cdot n_d} = 1.00000$

$\frac{n_a \cdot n_c \cdot N_1^2}{n_b \cdot n_d} = 26.25000$

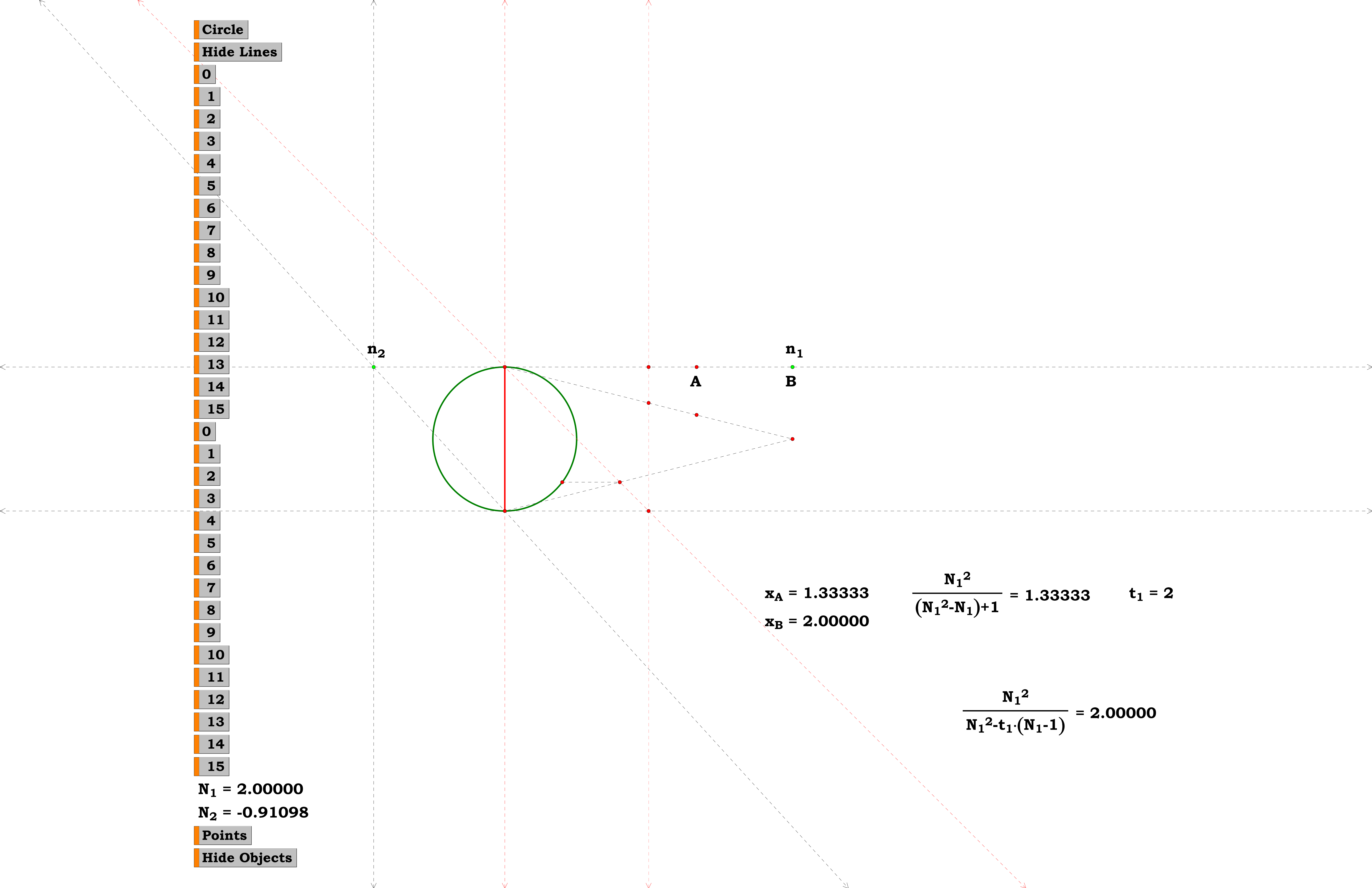
$\frac{n_a \cdot n_c \cdot N_1^2}{n_b \cdot n_d} - In_{dx} = 26.25000$

$N_1^2 - N_1 = 20.00000$

$N_1^2 \cdot n_a \cdot n_c = 525.00000$

$N_1^2 \cdot n_b \cdot n_d = 500.00000$

$\frac{(N_1^2 - N_1) \cdot n_a \cdot n_c}{n_b \cdot n_d} = 21.00000$



Circle
Hide Lines
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13
14
15
0
1
2
3
4
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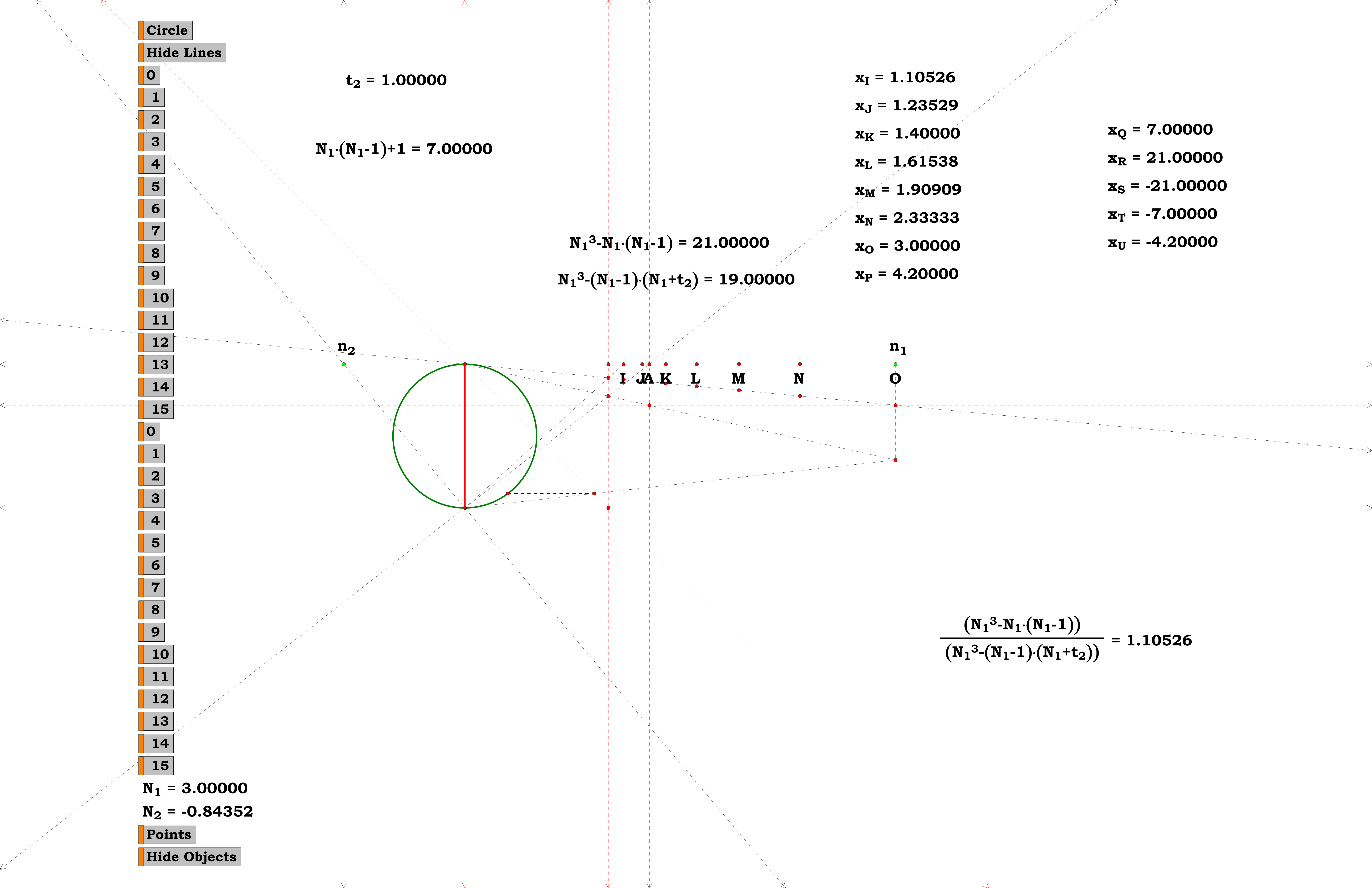
6
7
8
9
10
11
12
13
14
15
$N_1 = 2.00000$
$N_2 = -0.91098$
Points
Hide Objects
n_2
n_1
A
B
$x_A = 1.33333$
$x_B = 2.00000$
$\frac{N_1^2}{(N_1^2 - N_1) + 1} = 1.33333$
$t_1 = 2$
$\frac{N_1^2}{N_1^2 - t_1 \cdot (N_1 - 1)} = 2.00000$



Circle
Hide Lines
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13
14
15
0
1
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6
7
8
9
10
11
12
13
14
15
N1 = 3.00000
N2 = -0.84352
Points
Hide Objects
t2 = 1.00000
N1·(N1-1)+1 = 7.00000
N1^3-N1·(N1-1) = 21.00000
N1^3-(N1-1)·(N1+t2) = 19.00000
xI = 1.10526
xJ = 1.23529
xK = 1.40000
xL = 1.61538
xM = 1.90909
xN = 2.33333
xO = 3.00000
xP = 4.20000
xQ = 7.00000
xR = 21.00000
xS = -21.00000
xT = -7.00000
xU = -4.20000
n2
n1
I
J
A
K
L
M
N
O
(N1^3-N1·(N1-1)) / (N1^3-(N1-1)·(N1+t2)) = 1.10526

Circle
Hide Lines
0
1
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3
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13
14
15
0
1
2
3
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8
9
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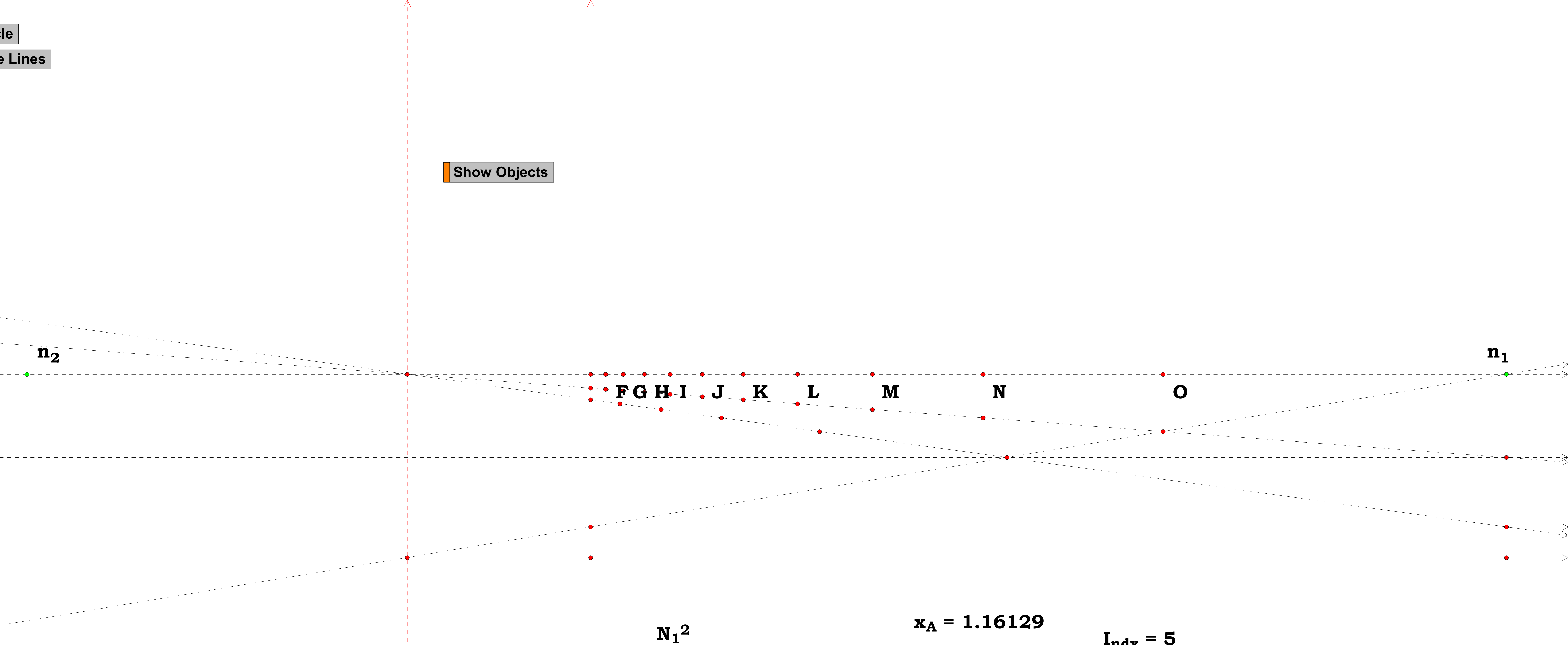
11
12
13
14
15



$$\frac{N_1^2}{(N_1^2 - I_{ndx} \cdot (N_1 - 1))} = 3.27273$$

$x_A = 1.16129$
$x_B = 1.38462$
$x_C = 1.71429$
$x_D = 2.25000$
$x_E = 3.27273$

$I_{ndx} = 5$

$N_1^2 - I_{ndx} \cdot (N_1 - 1) = 11.00000$

$x_F = 1.08197$
$x_G = 1.17857$
$x_H = 1.29412$
$x_I = 1.43478$
$x_J = 1.60976$
$x_K = 1.83333$
$x_L = 2.12903$
$x_M = 2.53846$
$x_N = 3.14286$
$x_O = 4.12500$

$N_1^2 + N_1 \cdot (N_1 - 1) = 66.00000$

$2 \cdot N_1 - 1 = 11.00000$

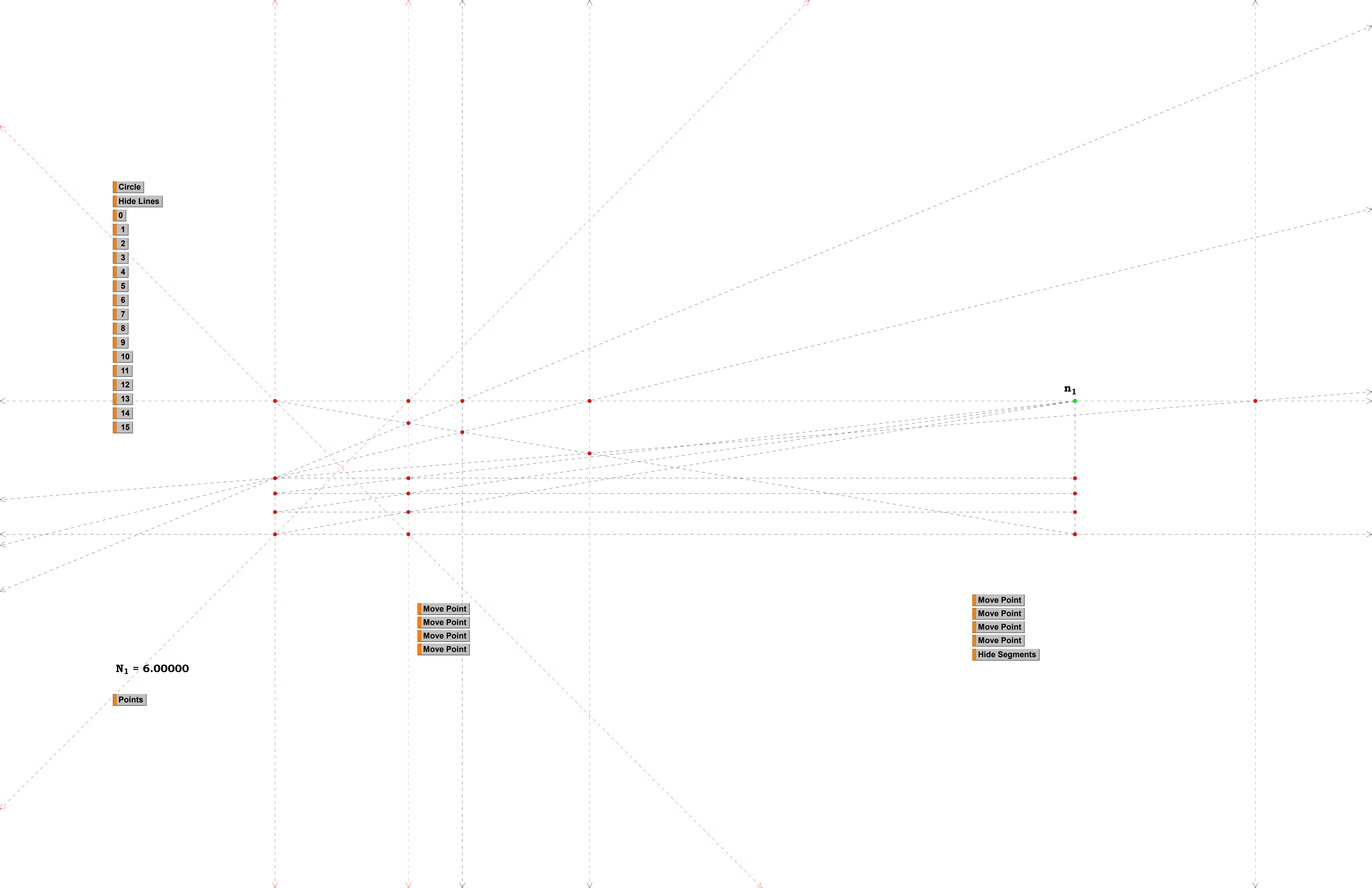
$$\frac{(N_1^2 + N_1 \cdot (N_1 - 1))}{(N_1^2 + (N_1 - 1) \cdot (N_1 - I_{ndx}))} = 1.60976$$

$N_1^2 + (N_1 - 1) \cdot (N_1 - I_{ndx}) = 41.00000$

$(N_1^2 + N_1 \cdot (N_1 - 1)) - I_{ndx} \cdot (N_1 - 1) = 41.00000$

$N_1 = 6.00000$
$N_2 = -2.07732$

Points
Hide Objects


Circle
Hide Lines
0
1
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15
n1
N1 = 6.00000
Points
Move Point
Move Point
Move Point
Move Point
Move Point
Move Point
Move Point
Move Point
Hide Segments

Circle

Show Lines

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Circle

Show Lines

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

$I_{ndx} = 3$

$n_3 = 3.00000$

$N_1{}^2 \cdot n_3 = 75.00000$

$N_1{}^2 \cdot n_3 - I_{ndx} \cdot (N_1 - 1) = 63.00000$

$$\frac{(N_1{}^2 \cdot n_3)}{(N_1{}^2 \cdot n_3 - I_{ndx} \cdot (N_1 - 1))} = 1.19048$$

$N_1 \cdot n_3 = 15.00000$

$x_A = 1.05634$ $x_L = 2.77778$

$x_B = 1.11940$ $x_M = 3.26087$

$x_C = 1.19048$ $x_N = 3.94737$

$x_D = 1.27119$ $x_O = 5.00000$

$x_E = 1.36364$

$x_F = 1.47059$

$x_G = 1.59574$

$x_H = 1.74419$

$x_I = 1.92308$

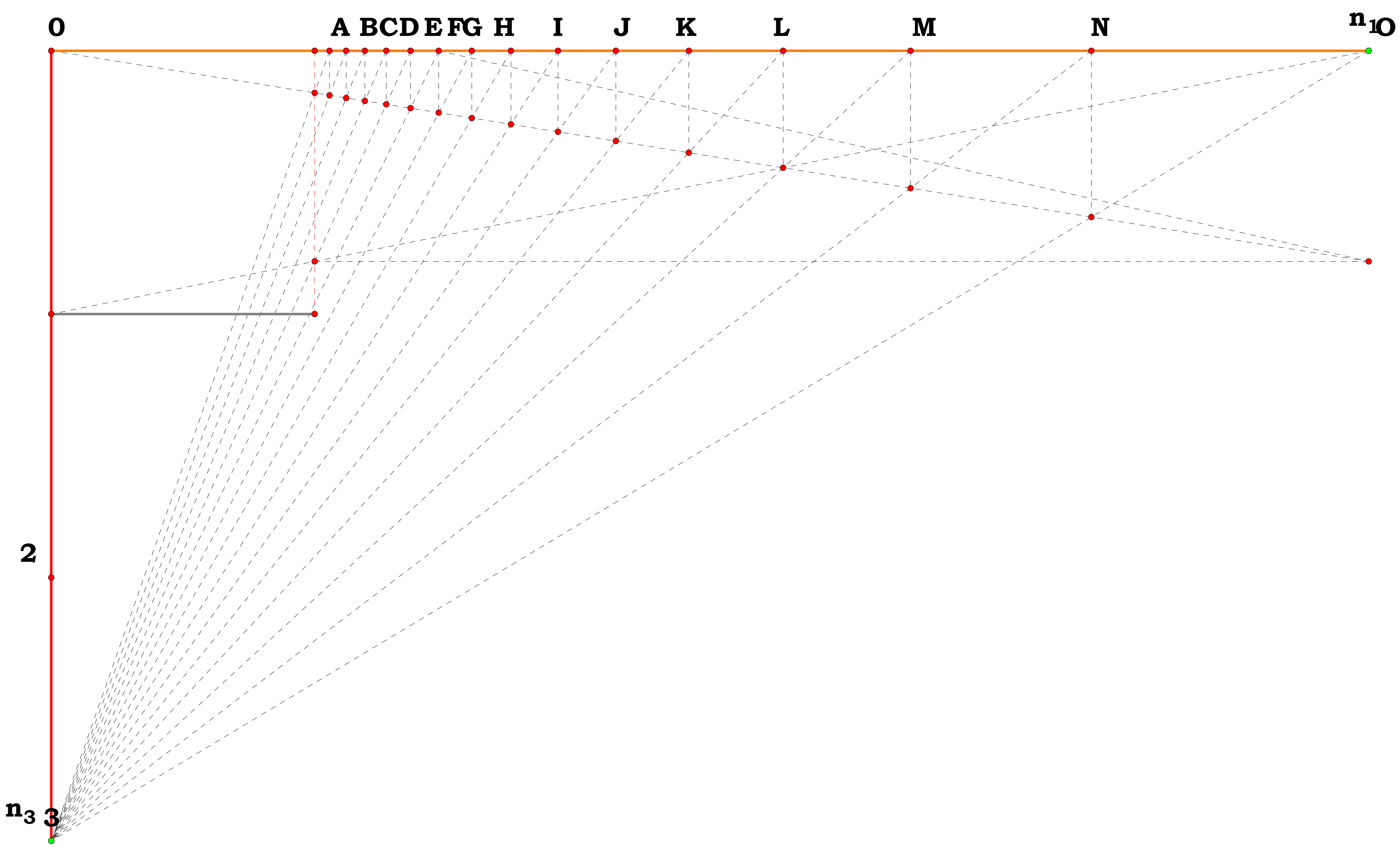
$x_J = 2.14286$

$x_K = 2.41935$

$N_1 = 5.00000$

Points

Points



Doc N[1]
Move N[1] -> 1
Move N[1] -> 2
Move N[1] -> 3
Move N[1] -> 4
Move N[1] -> 5
Move N[1] -> 6
Move N[1] -> 7
Move N[1] -> 8

Unit = 2.79400 cm

n_1 = 12.74233 cm

Hide Intersections
Show Lines
Hide Objects

Exponential Series

$0R_1$ = 3.57870 cm

R_1 = 1.28085

N_1 = 4.56061

$\frac{N_1}{N_1-1} - R_1 = 0.00000$

$\left(\frac{N_1}{N_1-1}\right)^{-3} - R_{-3} = 0.00000$

$\left(\frac{N_1}{N_1-1}\right)^{-2} - R_{-2} = 0.00000$

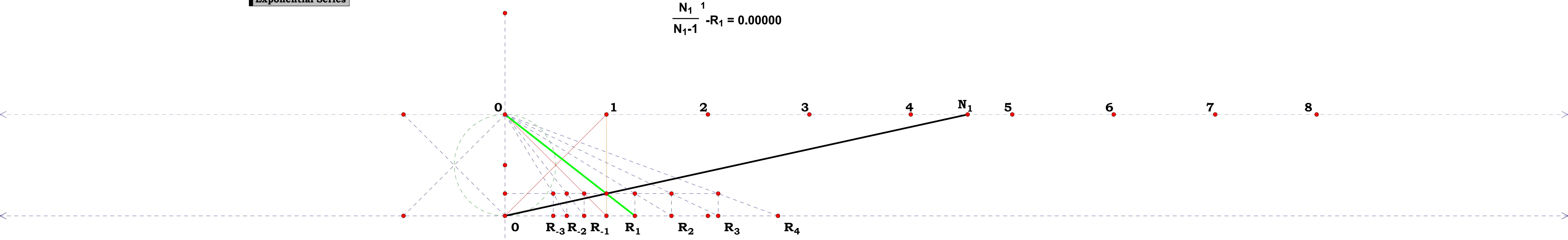
$\left(\frac{N_1}{N_1-1}\right)^{-1} - R_{-1} = 0.00000$

$\left(\frac{N_1}{N_1-1}\right)^{1} - R_{1} = 0.00000$

$\left(\frac{N_1}{N_1-1}\right)^{2} - R_{2} = 0.00000$

$\left(\frac{N_1}{N_1-1}\right)^{3} - R_{3} = 0.00000$

$\left(\frac{N_1}{N_1-1}\right)^{4} - R_{4} = 0.00000$



$\frac{R_{-2}}{R_{-3}} = 1.28085$

$\frac{N_1}{N_1-1} = 1.28085$

R_{-3} = 0.47589
R_{-2} = 0.60954
R_{-1} = 0.78073

R_2 = 1.64058
R_3 = 2.10134
R_4 = 2.69150

$0R_{-3}$ = 1.32963 cm
$0R_{-2}$ = 1.70306 cm
$0R_{-1}$ = 2.18136 cm

$0R_2$ = 4.58378 cm
$0R_3$ = 5.87114 cm
$0R_4$ = 7.52005 cm

Doc N[1]

Move N[1] -> 1

Move N[1] -> 2

Move N[1] -> 3

Move N[1] -> 4

Move N[1] -> 5

Move N[1] -> 6

Move N[1] -> 7

Move N[1] -> 8

Unit = 2.79400 cm

n_1 = 8.80533 cm

N_1 = 3.15152

Hide Intersections

Hide Objects

Hide Segments

Show Lines

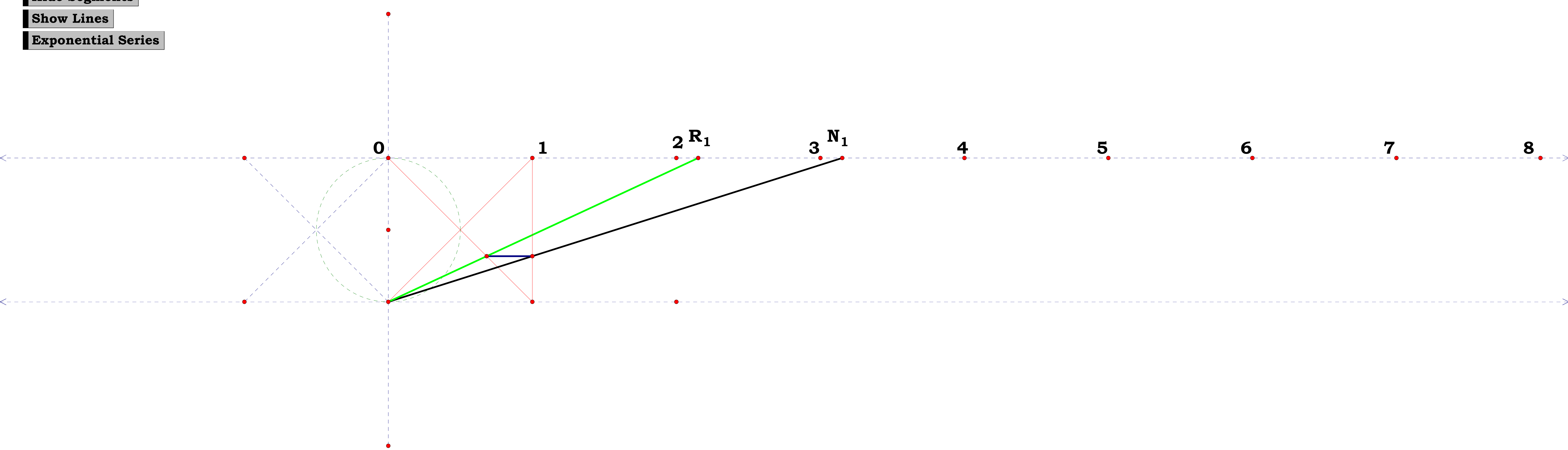
Exponential Series

$0R_1$ = 6.01133 cm

R_1 = 2.15152

N_1-R_1 = 1.00000

N_1-1-R_1 = 0.00000



Doc N[1]
Move N[1] -> 1
Move N[1] -> 2
Move N[1] -> 3
Move N[1] -> 4
Move N[1] -> 5
Move N[1] -> 6
Move N[1] -> 7
Move N[1] -> 8

Unit = 2.79400 cm

n_1 = 9.03817 cm

N_1 = 3.23485

Hide Intersections
Hide Segments
Show Lines

Show Objects

$0R_1$ = 1.93028 cm

R_1 = 0.69087

$\frac{N_1 - 1}{N_1} - R_1 = 0.00000$

$\frac{N_1 - 1}{N_1}^4 - R_4 = 0.00000$

$\frac{N_1 - 1}{N_1}^3 - R_3 = 0.00000$

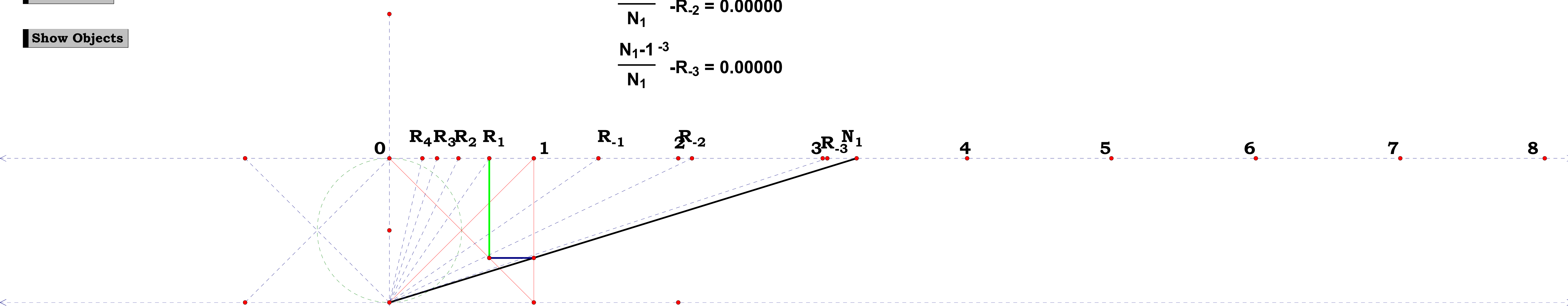
$\frac{N_1 - 1}{N_1}^2 - R_2 = 0.00000$

$\frac{N_1 - 1}{N_1}^1 - R_1 = 0.00000$

$\frac{N_1 - 1}{N_1}^{-1} - R_{-1} = 0.00000$

$\frac{N_1 - 1}{N_1}^{-2} - R_{-2} = 0.00000$

$\frac{N_1 - 1}{N_1}^{-3} - R_{-3} = 0.00000$



$\frac{R_4}{R_3} = 0.69087$

$\frac{N_1 - 1}{N_1} = 0.69087$

R_4 = 0.22781
R_3 = 0.32975
R_2 = 0.47730

R_{-1} = 1.44746
R_{-2} = 2.09513
R_{-3} = 3.03262

$0R_4$ = 0.63651 cm
$0R_3$ = 0.92132 cm
$0R_2$ = 1.33357 cm

$0R_{-1}$ = 4.04420 cm
$0R_{-2}$ = 5.85380 cm
$0R_{-3}$ = 8.47313 cm

Doc N[1]

Move N[1] -> 1

Move N[1] -> 2

Move N[1] -> 3

Move N[1] -> 4

Move N[1] -> 5

Move N[1] -> 6

Move N[1] -> 7

Move N[1] -> 8

Unit = 2.79400 cm

n_1 = 8.03338 cm

N_1 = 2.87523

Hide Intersections

Hide Objects

Hide Segments

Show Lines

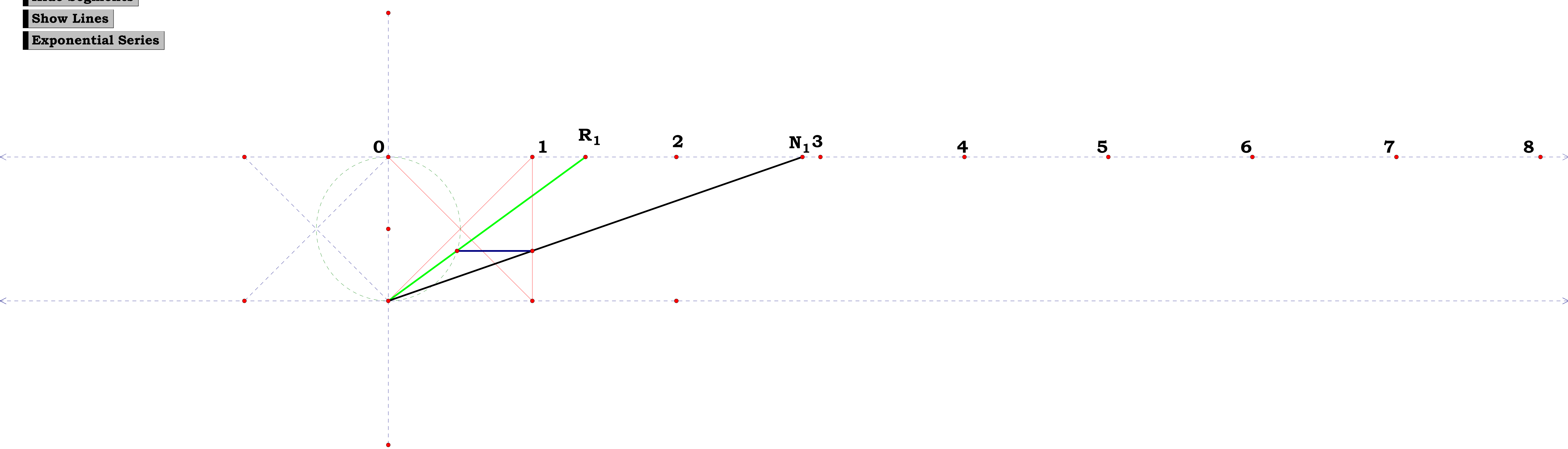
Exponential Series

$0R_1$ = 3.82607 cm

R_1 = 1.36939

$\sqrt{N_1\text{-}1}$ = 1.36939

$\sqrt{N_1\text{-}1}\text{-}R_1$ = 0.00000



Doc N[1]

Move N[1] -> 1

Move N[1] -> 2

Move N[1] -> 3

Move N[1] -> 4

Move N[1] -> 5

Move N[1] -> 6

Move N[1] -> 7

Move N[1] -> 8

Unit = 2.81517 cm

n_1 = 4.62741 cm

$0R_1$ = 3.50871 cm

R_1 = 1.24636

N_1 = 1.64374

$$\frac{1}{\sqrt{N_1-1}}-R_1 = 0.00000$$

$$\left(\frac{1}{\sqrt{N_1-1}}\right)^{-3}-R_{-3} = 0.00000$$

$$\left(\frac{1}{\sqrt{N_1-1}}\right)^{-2}-R_{-2} = 0.00000$$

$$\left(\frac{1}{\sqrt{N_1-1}}\right)^{-1}-R_{-1} = 0.00000$$

$$\left(\frac{1}{\sqrt{N_1-1}}\right)^{1}-R_{1} = 0.00000$$

$$\left(\frac{1}{\sqrt{N_1-1}}\right)^{2}-R_{2} = 0.00000$$

$$\left(\frac{1}{\sqrt{N_1-1}}\right)^{3}-R_{3} = 0.00000$$

$$\left(\frac{1}{\sqrt{N_1-1}}\right)^{4}-R_{4} = 0.00000$$

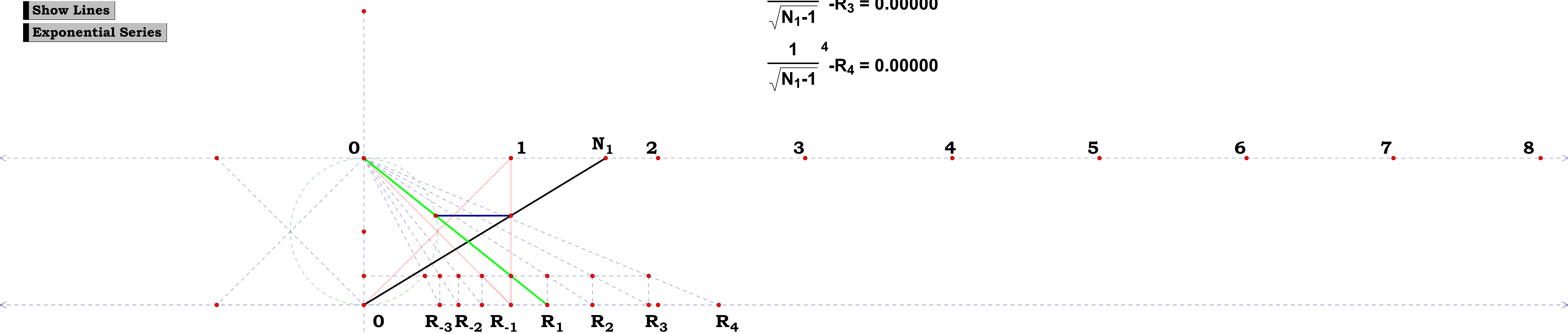
Hide Intersections

Hide Objects

Hide Segments

Show Lines

Exponential Series



$$\frac{R_{-2}}{R_{-3}} = 1.24636$$

$$\frac{1}{\sqrt{N_1-1}} = 1.24636$$

R_{-3} = 0.51650

R_{-2} = 0.64374

R_{-1} = 0.80234

R_2 = 1.55341

R_3 = 1.93611

R_4 = 2.41309

$0R_{-3}$ = 1.45403 cm

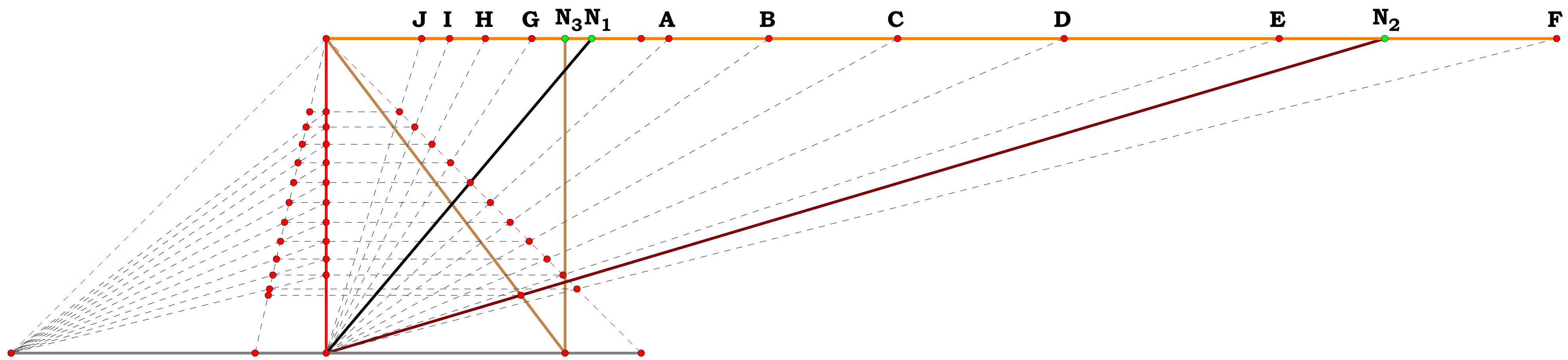
$0R_{-2}$ = 1.81225 cm

$0R_{-1}$ = 2.25871 cm

$0R_2$ = 4.37312 cm

$0R_3$ = 5.45048 cm

$0R_4$ = 6.79326 cm



$$\frac{N_1^{\frac{1}{4}}\cdot N_2}{N_2\text{-}N_3}^{4}\text{-}D = 0.00000$$

$$\frac{N_1\cdot N_2^{4}}{(N_2\text{-}N_3)^{4}}\text{-}D = 0.00000$$

$$\frac{N_2}{N_2\text{-}N_3} = 1.29123$$

$N_1 = 0.84255$

$N_2 = 3.35986$

$N_3 = 0.75780$

A = 1.08792

B = 1.40476

C = 1.81388

D = 2.34214

E = 3.02425

F = 3.90501

G = 0.65251

H = 0.50534

I = 0.39136

J = 0.30309

$$\frac{N_2}{N_2\text{-}N_3}^{1}\cdot N_1\text{-}A = 0.00000$$

$$\frac{N_2}{N_2\text{-}N_3}^{2}\cdot N_1\text{-}B = 0.00000$$

$$\frac{N_2}{N_2\text{-}N_3}^{3}\cdot N_1\text{-}C = 0.00000$$

$$\frac{N_2}{N_2\text{-}N_3}^{4}\cdot N_1\text{-}D = 0.00000$$

$$\frac{N_2}{N_2\text{-}N_3}^{5}\cdot N_1\text{-}E = 0.00000$$

$$\frac{N_2}{N_2\text{-}N_3}^{6}\cdot N_1\text{-}F = 0.00000$$

$$\frac{N_2}{N_2\text{-}N_3}^{-1}\cdot N_1\text{-}G = 0.00000$$

$$\frac{N_2}{N_2\text{-}N_3}^{-2}\cdot N_1\text{-}H = 0.00000$$

$$\frac{N_2}{N_2\text{-}N_3}^{-3}\cdot N_1\text{-}I = 0.00000$$

$$\frac{N_2}{N_2\text{-}N_3}^{-4}\cdot N_1\text{-}J = 0.00000$$

Doc N[1]

Move N[1] -> 1

Move N[1] -> 2

Move N[1] -> 3

Move N[1] -> 4

Move N[1] -> 5

Move N[1] -> 6

Move N[1] -> 7

Move N[1] -> 8

Unit = 2.81517 cm

n_1 = 4.89896 cm

Hide Intersections

Show Lines

Hide Segments

Hide Objects

Exponential Series

$0R_1$ = 3.80323 cm

R_1 = 1.35098

N_1 = 1.74020

$\frac{1}{N_1-1}-R_1 = 0.00000$

$\left(\frac{1}{N_1-1}\right)^{-3}-R_{-3} = 0.00000$

$\left(\frac{1}{N_1-1}\right)^{-2}-R_{-2} = 0.00000$

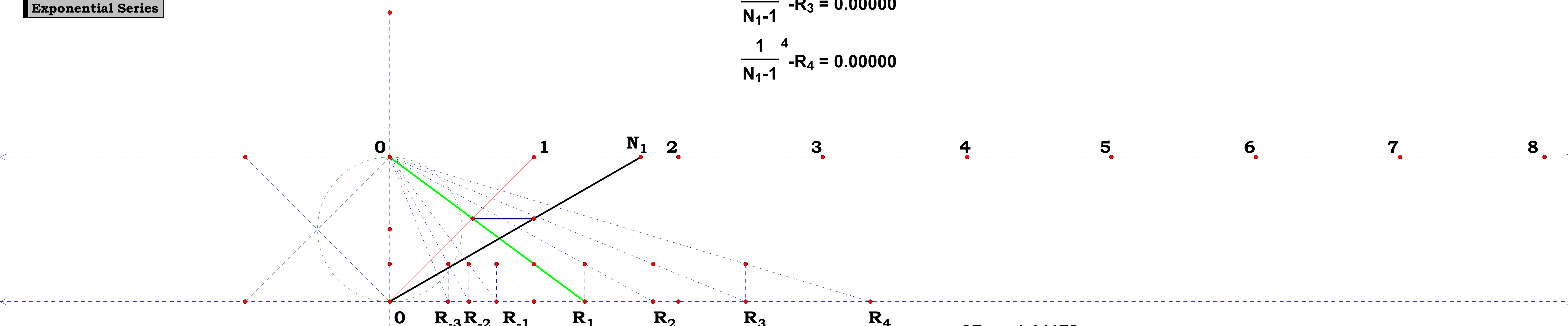
$\left(\frac{1}{N_1-1}\right)^{-1}-R_{-1} = 0.00000$

$\left(\frac{1}{N_1-1}\right)^{1}-R_{1} = 0.00000$

$\left(\frac{1}{N_1-1}\right)^{2}-R_{2} = 0.00000$

$\left(\frac{1}{N_1-1}\right)^{3}-R_{3} = 0.00000$

$\left(\frac{1}{N_1-1}\right)^{4}-R_{4} = 0.00000$



$\frac{R_{-2}}{R_{-3}} = 1.35098$

$\frac{1}{N_1-1} = 1.35098$

R_{-3} = 0.40556

R_{-2} = 0.54790

R_{-1} = 0.74020

R_2 = 1.82514

R_3 = 2.46573

R_4 = 3.33115

$0R_{-3}$ = 1.14172 cm

$0R_{-2}$ = 1.54244 cm

$0R_{-1}$ = 2.08380 cm

$0R_2$ = 5.13808 cm

$0R_3$ = 6.94144 cm

$0R_4$ = 9.37774 cm

Doc N[1]
Move N[1] -> 1
Move N[1] -> 2
Move N[1] -> 3
Move N[1] -> 4
Move N[1] -> 5
Move N[1] -> 6
Move N[1] -> 7
Move N[1] -> 8

Unit = 2.79400 cm

n_1 = 4.33917 cm

Hide Intersections
Hide Segments
Show Lines

$0R_1$ = 1.79906 cm

R_1 = 0.64390

N_1 = 1.55303

$\frac{1}{N_1} - R_1 = 0.00000$

$\left(\frac{1}{N_1}\right)^4 - R_4 = 0.00000$

$\left(\frac{1}{N_1}\right)^3 - R_3 = 0.00000$

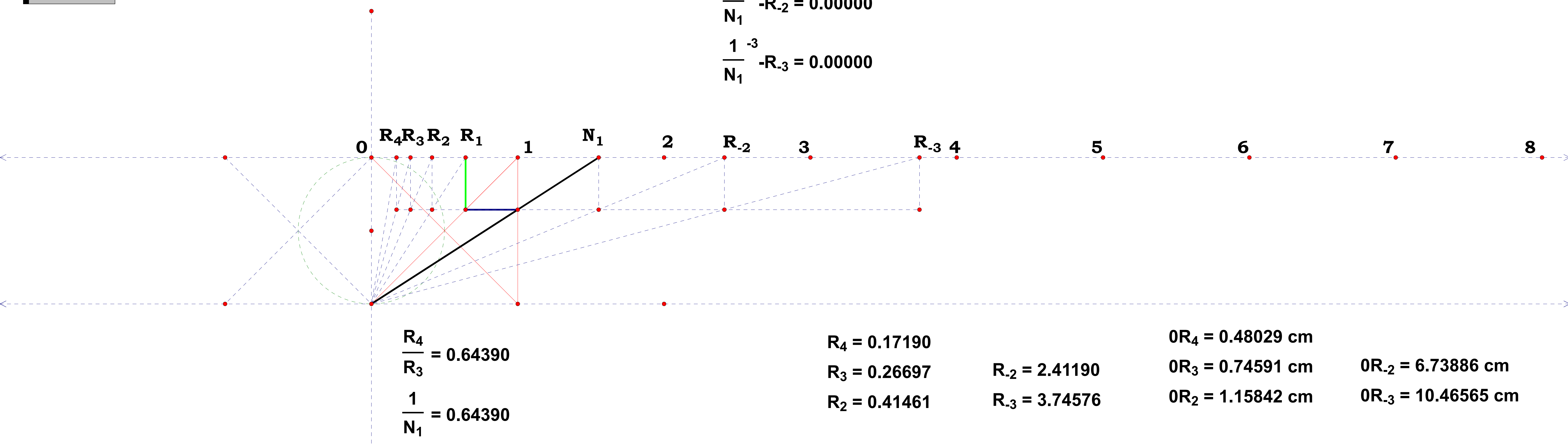
$\left(\frac{1}{N_1}\right)^2 - R_2 = 0.00000$

$\left(\frac{1}{N_1}\right)^1 - R_1 = 0.00000$

$\left(\frac{1}{N_1}\right)^{-1} - N_1 = 0.00000$

$\left(\frac{1}{N_1}\right)^{-2} - R_{-2} = 0.00000$

$\left(\frac{1}{N_1}\right)^{-3} - R_{-3} = 0.00000$



$\frac{R_4}{R_3} = 0.64390$

$\frac{1}{N_1} = 0.64390$

R_4 = 0.17190

R_3 = 0.26697

R_2 = 0.41461

R_{-2} = 2.41190

R_{-3} = 3.74576

$0R_4$ = 0.48029 cm

$0R_3$ = 0.74591 cm

$0R_2$ = 1.15842 cm

$0R_{-2}$ = 6.73886 cm

$0R_{-3}$ = 10.46565 cm

Doc N[1]
Move N[1] -> 1
Move N[1] -> 2
Move N[1] -> 3
Move N[1] -> 4
Move N[1] -> 5
Move N[1] -> 6
Move N[1] -> 7
Move N[1] -> 8

Unit = 2.81517 cm

n_1 = 0.81277 cm

N_1 = 0.28871

Hide Intersections
Hide Objects
Show Lines
Exponential Series

$0R_1$ = 3.62793 cm

R_1 = 1.28871

$(N_1+1)-R_1$ = 0.00000

$(N_1+1)^{-3}-R_{-3}$ = 0.00000

$(N_1+1)^{-2}-R_{-2}$ = 0.00000

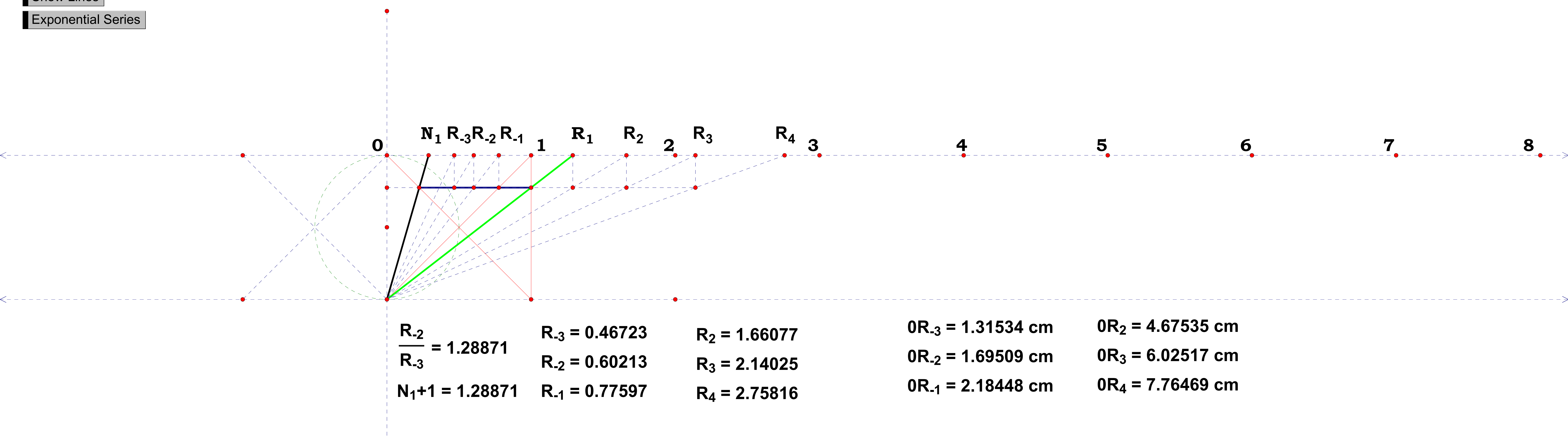
$(N_1+1)^{-1}-R_{-1}$ = 0.00000

$(N_1+1)^{1}-R_1$ = 0.00000

$(N_1+1)^{2}-R_2$ = 0.00000

$(N_1+1)^{3}-R_3$ = 0.00000

$(N_1+1)^{4}-R_4$ = 0.00000



$\frac{R_{-2}}{R_{-3}}$ = 1.28871

N_1+1 = 1.28871

R_{-3} = 0.46723

R_{-2} = 0.60213

R_{-1} = 0.77597

R_2 = 1.66077

R_3 = 2.14025

R_4 = 2.75816

$0R_{-3}$ = 1.31534 cm

$0R_{-2}$ = 1.69509 cm

$0R_{-1}$ = 2.18448 cm

$0R_2$ = 4.67535 cm

$0R_3$ = 6.02517 cm

$0R_4$ = 7.76469 cm

Doc N[1]

Move N[1] -> 1

Move N[1] -> 2

Move N[1] -> 3

Move N[1] -> 4

Move N[1] -> 5

Move N[1] -> 6

Move N[1] -> 7

Move N[1] -> 8

Unit = 2.77283 cm

$n_1 = 7.11974$ cm

Hide Intersections

Show Lines

Hide Objects

Exponential Series

$0R_1 = 3.85273$ cm

$R_1 = 1.38946$

$N_1 = 2.56768$

$\frac{N_1+1}{N_1} - R_1 = 0.00000$

${\frac{N_1+1}{N_1}}^{-3} - R_{-3} = 0.00000$

${\frac{N_1+1}{N_1}}^{-2} - R_{-2} = 0.00000$

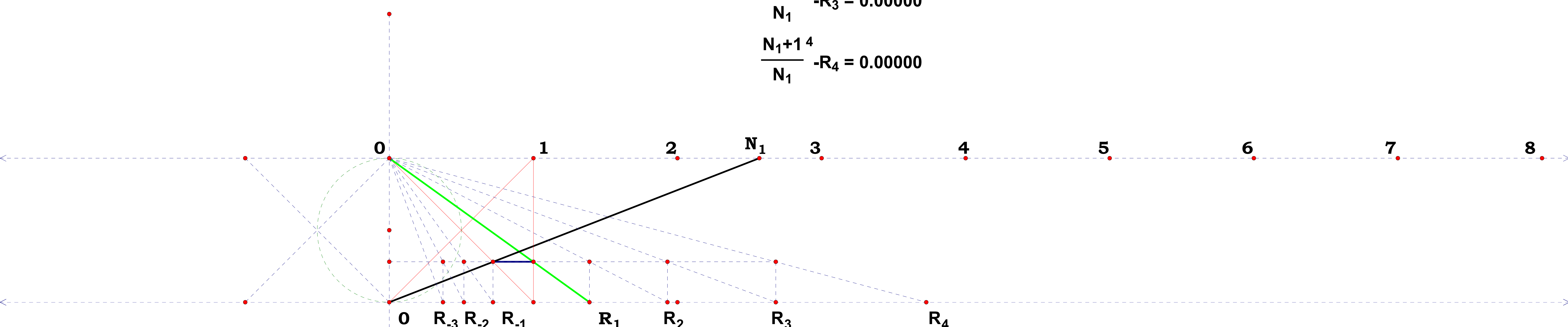
${\frac{N_1+1}{N_1}}^{-1} - R_{-1} = 0.00000$

${\frac{N_1+1}{N_1}}^{1} - R_1 = 0.00000$

${\frac{N_1+1}{N_1}}^{2} - R_2 = 0.00000$

${\frac{N_1+1}{N_1}}^{3} - R_3 = 0.00000$

${\frac{N_1+1}{N_1}}^{4} - R_4 = 0.00000$



$\frac{R_{-2}}{R_{-3}} = 1.38946$

$\frac{N_1+1}{N_1} = 1.38946$

$R_{-3} = 0.37279$

$R_{-2} = 0.51798$

$R_{-1} = 0.71971$

$R_2 = 1.93059$

$R_3 = 2.68247$

$R_4 = 3.72718$

$0R_{-3} = 1.03369$ cm

$0R_{-2} = 1.43626$ cm

$0R_{-1} = 1.99562$ cm

$0R_2 = 5.35321$ cm

$0R_3 = 7.43805$ cm

$0R_4 = 10.33485$ cm

Doc N[1]

Move N[1] -> 1

Move N[1] -> 2

Move N[1] -> 3

Move N[1] -> 4

Move N[1] -> 5

Move N[1] -> 6

Move N[1] -> 7

Move N[1] -> 8

Unit = 2.77283 cm

n_1 = 8.10683 cm

Hide Intersections

Show Lines

Hide Segments

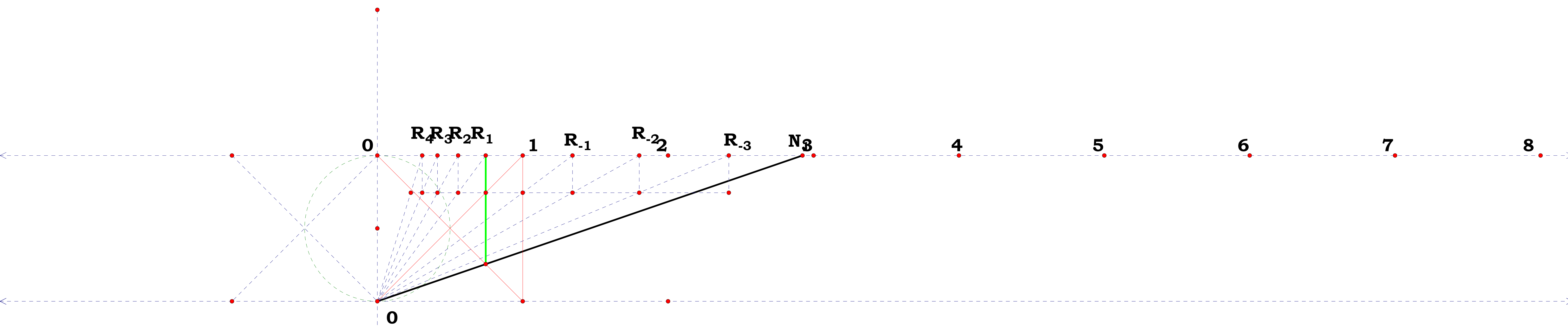
$0R_1$ = 2.06614 cm

$R_1 = 0.74514$

$N_1 = 2.92366$

$\frac{N_1}{N_1+1} - R_1 = 0.00000$

$\left(\frac{N_1}{N_1+1}\right)^4 - R_4 = 0.00000$



$\frac{R_4}{R_3} = 0.74514$

$\frac{N_1}{N_1+1} = 0.74514$

$R_4 = 0.30828$

$R_3 = 0.41372$

$R_2 = 0.55523$

$R_{-1} = 1.34204$

$R_{-2} = 1.80106$

$R_{-3} = 2.41709$

$0R_4$ = 0.85480 cm

$0R_3$ = 1.14718 cm

$0R_2$ = 1.53955 cm

$0R_{-1}$ = 3.72124 cm

$0R_{-2}$ = 4.99405 cm

$0R_{-3}$ = 6.70219 cm

Doc N[1]

Move N[1] -> 1

Move N[1] -> 2

Move N[1] -> 3

Move N[1] -> 4

Move N[1] -> 5

Move N[1] -> 6

Move N[1] -> 7

Move N[1] -> 8

Unit = 2.83633 cm

n_1 = 6.91100 cm

Hide Intersections

Show Lines

Hide Objects

Exponential Series

$0R_1$ = 4.42740 cm

R_1 = 1.56096

N_1 = 2.43660

$\sqrt{N_1} - R_1 = 0.00000$

$\sqrt{N_1}^{-3} - R_{-3} = 0.00000$

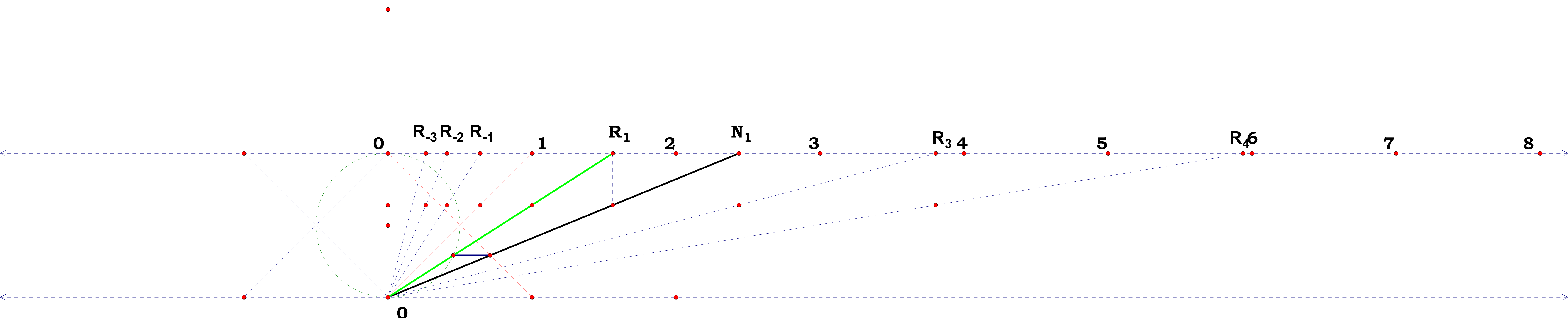
$\sqrt{N_1}^{-2} - R_{-2} = 0.00000$

$\sqrt{N_1}^{-1} - R_{-1} = 0.00000$

$\sqrt{N_1}^{2} - N_1 = 0.00000$

$\sqrt{N_1}^{3} - R_3 = 0.00000$

$\sqrt{N_1}^{4} - R_4 = 0.00000$



$\dfrac{R_{-2}}{R_{-3}} = 1.56096$

$\sqrt{N_1} = 1.56096$

R_{-3} = 0.26292

R_{-2} = 0.41041

R_{-1} = 0.64063

R_3 = 3.80343

R_4 = 5.93701

$0R_{-3}$ = 0.74573 cm

$0R_{-2}$ = 1.16405 cm

$0R_{-1}$ = 1.81704 cm

$0R_3$ = 10.78780 cm

$0R_4$ = 16.83933 cm

Doc N[1]

Move N[1] -> 1

Move N[1] -> 2

Move N[1] -> 3

Move N[1] -> 4

Move N[1] -> 5

Move N[1] -> 6

Move N[1] -> 7

Move N[1] -> 8

Unit = 2.79400 cm

n_1 = 1.60557 cm

Hide Intersections

Show Lines

Hide Objects

Exponential Series

$0R_1$ = 3.68574 cm

R_1 = 1.31916

N_1 = 0.57465

$\frac{1}{\sqrt{N_1}} - R_1 = 0.00000$

$\left(\frac{1}{\sqrt{N_1}}\right)^{-3} - R_{-3} = 0.00000$

$\left(\frac{1}{\sqrt{N_1}}\right)^{-2} - R_{-2} = 0.00000$

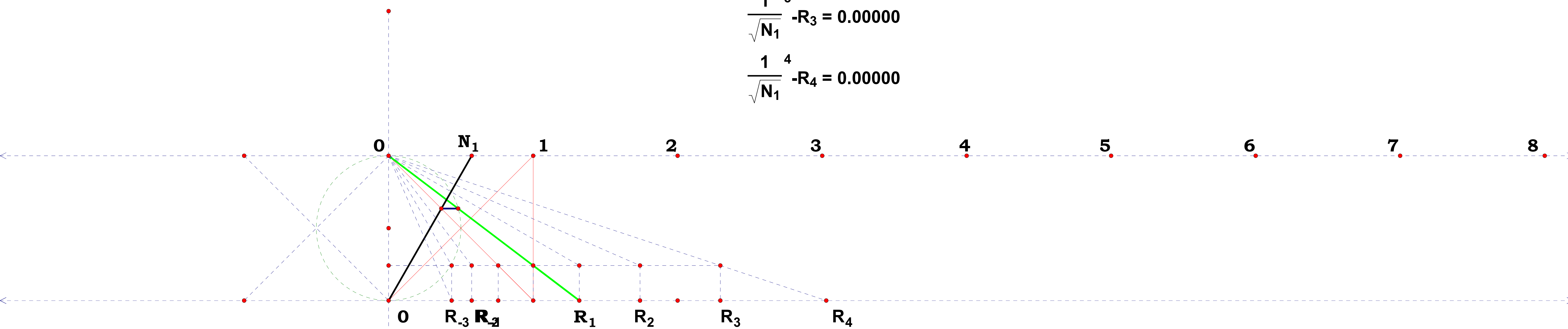
$\left(\frac{1}{\sqrt{N_1}}\right)^{-1} - R_{-1} = 0.00000$

$\left(\frac{1}{\sqrt{N_1}}\right)^{1} - R_{1} = 0.00000$

$\left(\frac{1}{\sqrt{N_1}}\right)^{2} - R_{2} = 0.00000$

$\left(\frac{1}{\sqrt{N_1}}\right)^{3} - R_{3} = 0.00000$

$\left(\frac{1}{\sqrt{N_1}}\right)^{4} - R_{4} = 0.00000$



$\frac{R_{-2}}{R_{-3}} = 1.31916$

$\frac{1}{\sqrt{N_1}} = 1.31916$

R_{-3} = 0.43562	R_2 = 1.74019	$0R_{-3}$ = 1.21711 cm	$0R_2$ = 4.86210 cm
R_{-2} = 0.57465	R_3 = 2.29560	$0R_{-2}$ = 1.60557 cm	$0R_3$ = 6.41390 cm
R_{-1} = 0.75806	R_4 = 3.02827	$0R_{-1}$ = 2.11801 cm	$0R_4$ = 8.46099 cm

Doc N[1]
Move N[1] -> 1
Move N[1] -> 2
Move N[1] -> 3
Move N[1] -> 4
Move N[1] -> 5
Move N[1] -> 6
Move N[1] -> 7
Move N[1] -> 8

Unit = 2.79400 cm

n_1 = 4.29683 cm

Hide Intersections
Show Lines
Hide Segments
Show Objects
Hide Objects
Exponential Series

$0R_1$ = 1.36526 cm

$R_1 = 0.48864$

$N_1 = 1.53788$

$$\frac{\sqrt{N_1}}{N_1+1} - R_1 = 0.00000$$

$$\frac{\sqrt{N_1}}{N_1+1}^{4} - R_4 = 0.00000$$

$$\frac{\sqrt{N_1}}{N_1+1}^{3} - R_3 = 0.00000$$

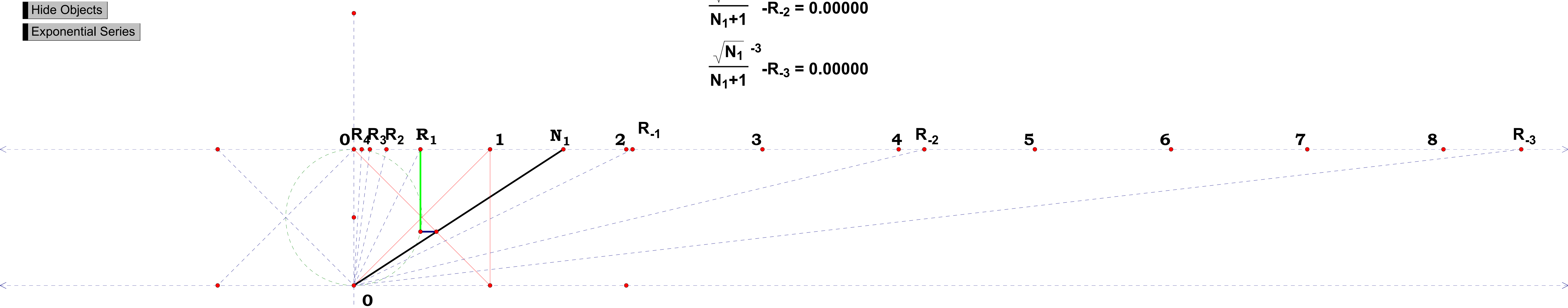
$$\frac{\sqrt{N_1}}{N_1+1}^{2} - R_2 = 0.00000$$

$$\frac{\sqrt{N_1}}{N_1+1}^{1} - R_1 = 0.00000$$

$$\frac{\sqrt{N_1}}{N_1+1}^{-1} - R_{-1} = 0.00000$$

$$\frac{\sqrt{N_1}}{N_1+1}^{-2} - R_{-2} = 0.00000$$

$$\frac{\sqrt{N_1}}{N_1+1}^{-3} - R_{-3} = 0.00000$$



$$\frac{R_4}{R_3} = 0.48864$$

$$\frac{\sqrt{N_1}}{N_1+1} = 0.48864$$

$R_4 = 0.05701$ $R_{-1} = 2.04649$

$R_3 = 0.11667$ $R_{-2} = 4.18813$

$R_2 = 0.23877$ $R_{-3} = 8.57096$

$0R_4$ = 0.15929 cm $0R_{-1}$ = 5.71790 cm

$0R_3$ = 0.32598 cm $0R_{-2}$ = 11.70162 cm

$0R_2$ = 0.66712 cm $0R_{-3}$ = 23.94726 cm

Doc N[1]

Move N[1] -> 1

Move N[1] -> 2

Move N[1] -> 3

Move N[1] -> 4

Move N[1] -> 5

Move N[1] -> 6

Move N[1] -> 7

Move N[1] -> 8

Unit = 2.79400 cm

n_1 = 0.61383 cm

Hide Intersections

Show Lines

Hide Segments

Hide Objects

Exponential Series

$0R_1 = 2.29073$ cm

$R_1 = 0.81988$

$N_1 = 0.21970$

$\frac{1}{N_1+1} - R_1 = 0.00000$

$\left(\frac{1}{N_1+1}\right)^{4} - R_4 = 0.00000$

$\left(\frac{1}{N_1+1}\right)^{3} - R_3 = 0.00000$

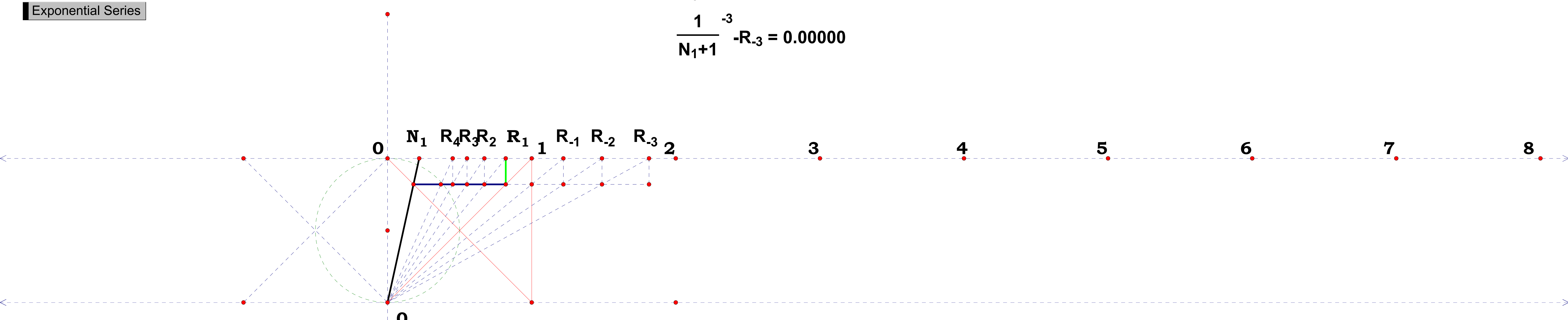
$\left(\frac{1}{N_1+1}\right)^{2} - R_2 = 0.00000$

$\left(\frac{1}{N_1+1}\right)^{1} - R_1 = 0.00000$

$\left(\frac{1}{N_1+1}\right)^{-1} - R_{-1} = 0.00000$

$\left(\frac{1}{N_1+1}\right)^{-2} - R_{-2} = 0.00000$

$\left(\frac{1}{N_1+1}\right)^{-3} - R_{-3} = 0.00000$



$\frac{R_4}{R_3} = 0.81988$

$\frac{1}{N_1+1} = 0.81988$

$R_4 = 0.45185$

$R_3 = 0.55112$

$R_2 = 0.67220$

$R_{-1} = 1.21970$

$R_{-2} = 1.48766$

$R_{-3} = 1.81450$

$0R_4 = 1.26246$ cm

$0R_3 = 1.53982$ cm

$0R_2 = 1.87812$ cm

$0R_{-1} = 3.40783$ cm

$0R_{-2} = 4.15652$ cm

$0R_{-3} = 5.06970$ cm

Doc N[1]

Move N[1] -> 1

Move N[1] -> 2

Move N[1] -> 3

Move N[1] -> 4

Move N[1] -> 5

Move N[1] -> 6

Move N[1] -> 7

Move N[1] -> 8

Unit = 2.77283 cm

n_1 = 2.06057 cm

Hide Intersections

Hide Objects

Show Lines

Exponential Series

$0R_1$ = 3.73131 cm

R_1 = 1.34567

N_1 = 0.74313

$\frac{1}{N_1} - R_1 = 0.00000$

$\left(\frac{1}{N_1}\right)^{-3} - R_{-3} = 0.00000$

$\left(\frac{1}{N_1}\right)^{-2} - R_{-2} = 0.00000$

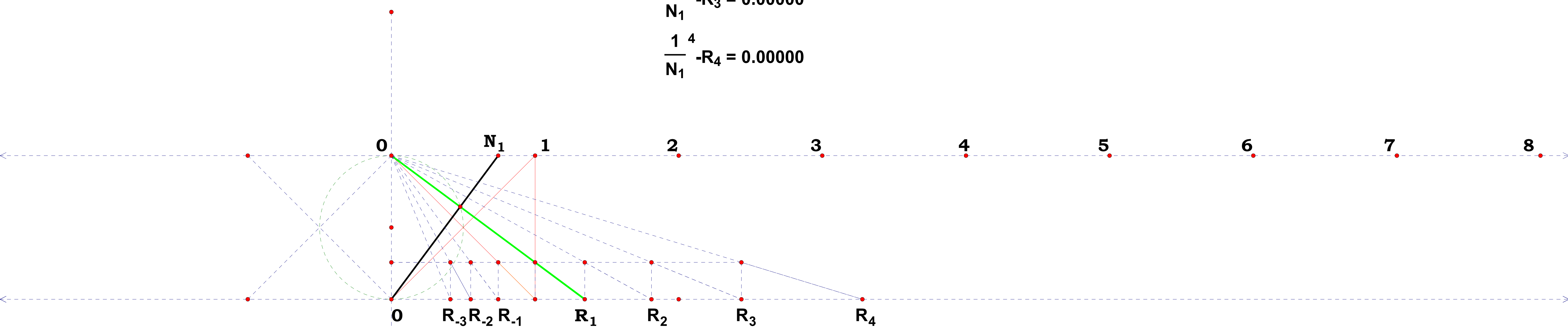
$\left(\frac{1}{N_1}\right)^{-1} - R_{-1} = 0.00000$

$\left(\frac{1}{N_1}\right)^{1} - R_{1} = 0.00000$

$\left(\frac{1}{N_1}\right)^{2} - R_{2} = 0.00000$

$\left(\frac{1}{N_1}\right)^{3} - R_{3} = 0.00000$

$\left(\frac{1}{N_1}\right)^{4} - R_{4} = 0.00000$



$\frac{R_{-2}}{R_{-3}} = 1.34567$

$\frac{1}{N_1} = 1.34567$

R_{-3} = 0.41038

R_{-2} = 0.55224

R_{-1} = 0.74313

R_2 = 1.81082

R_3 = 2.43675

R_4 = 3.27905

$0R_{-3}$ = 1.13792 cm

$0R_{-2}$ = 1.53126 cm

$0R_{-1}$ = 2.06057 cm

$0R_2$ = 5.02109 cm

$0R_3$ = 6.75671 cm

$0R_4$ = 9.09227 cm

Doc N[1]
Move N[1] -> 1
Move N[1] -> 2
Move N[1] -> 3
Move N[1] -> 4
Move N[1] -> 5
Move N[1] -> 6
Move N[1] -> 7
Move N[1] -> 8

Unit = 2.77283 cm

n_1 = 3.41954 cm

Hide Intersections
Show Lines
Hide Objects
Show Lines
Exponential Series

$0R_1$ = 4.21707 cm

R_1 = 1.52085

N_1 = 1.23323

$N_1^2 - R_1$ = 0.00000

$N_1^{2^{-3}} - R_{-3}$ = 0.00000

$N_1^{2^{-2}} - R_{-2}$ = 0.00000

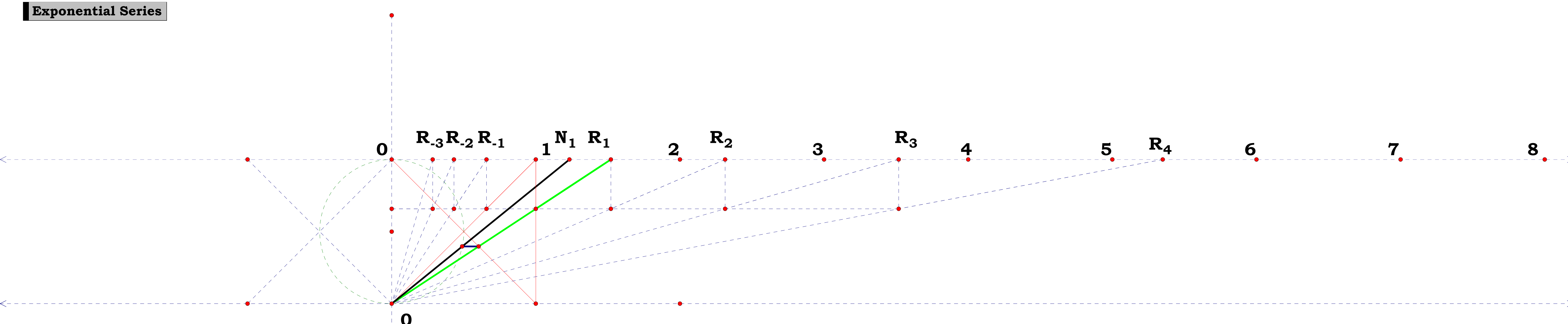
$N_1^{2^{-1}} - R_{-1}$ = 0.00000

$N_1^{2^1} - R_1$ = 0.00000

$N_1^{2^2} - R_2$ = 0.00000

$N_1^{2^3} - R_3$ = 0.00000

$N_1^{2^4} - R_4$ = 0.00000



$$\frac{R_{-2}}{R_{-3}} = 1.52085$$

N_1^2 = 1.52085

R_{-3} = 0.28428

R_{-2} = 0.43234

R_{-1} = 0.65753

R_2 = 2.31299

R_3 = 3.51771

R_4 = 5.34991

$0R_{-3}$ = 0.78825 cm

$0R_{-2}$ = 1.19881 cm

$0R_{-1}$ = 1.82321 cm

$0R_2$ = 6.41353 cm

$0R_3$ = 9.75402 cm

$0R_4$ = 14.83441 cm

Doc N[1]

Move N[1] -> 1

Move N[1] -> 2

Move N[1] -> 3

Move N[1] -> 4

Move N[1] -> 5

Move N[1] -> 6

Move N[1] -> 7

Move N[1] -> 8

Unit = 2.77283 cm

n_1 = 4.50850 cm

Hide Intersections

Show Lines

Hide Segments

Base Figure

Exponential Series

$0R_1$ = 2.01185 cm

R_1 = 0.72556

N_1 = 1.62595

$\frac{N_1^2}{N_1^2+1} - R_1 = 0.00000$

${\frac{N_1^2}{N_1^2+1}}^{4} - R_4 = 0.00000$

${\frac{N_1^2}{N_1^2+1}}^{3} - R_3 = 0.00000$

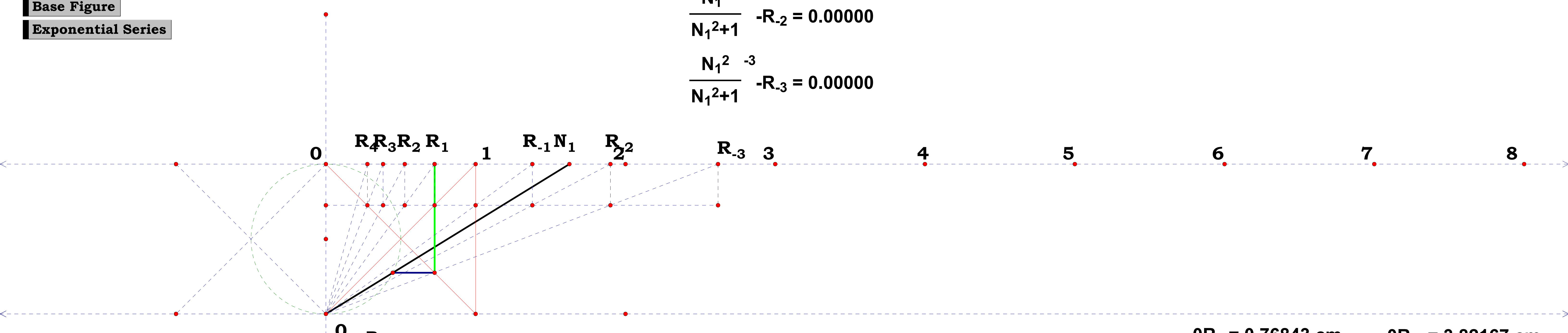
${\frac{N_1^2}{N_1^2+1}}^{2} - R_2 = 0.00000$

${\frac{N_1^2}{N_1^2+1}}^{1} - R_1 = 0.00000$

${\frac{N_1^2}{N_1^2+1}}^{-1} - R_{-1} = 0.00000$

${\frac{N_1^2}{N_1^2+1}}^{-2} - R_{-2} = 0.00000$

${\frac{N_1^2}{N_1^2+1}}^{-3} - R_{-3} = 0.00000$



$\frac{R_4}{R_3} = 0.72556$

$\frac{N_1^2}{N_1^2+1} = 0.72556$

R_4 = 0.27713

R_3 = 0.38196

R_2 = 0.52643

R_{-1} = 1.37825

R_{-2} = 1.89958

R_{-3} = 2.61811

$0R_4$ = 0.76843 cm

$0R_3$ = 1.05910 cm

$0R_2$ = 1.45971 cm

$0R_{-1}$ = 3.82167 cm

$0R_{-2}$ = 5.26723 cm

$0R_{-3}$ = 7.25958 cm

Doc N[1]

Move N[1] -> 1

Move N[1] -> 2

Move N[1] -> 3

Move N[1] -> 4

Move N[1] -> 5

Move N[1] -> 6

Move N[1] -> 7

Move N[1] -> 8

Unit = 2.77283 cm

n_1 = 2.15900 cm

Hide Intersections

Show Lines

Hide Segments

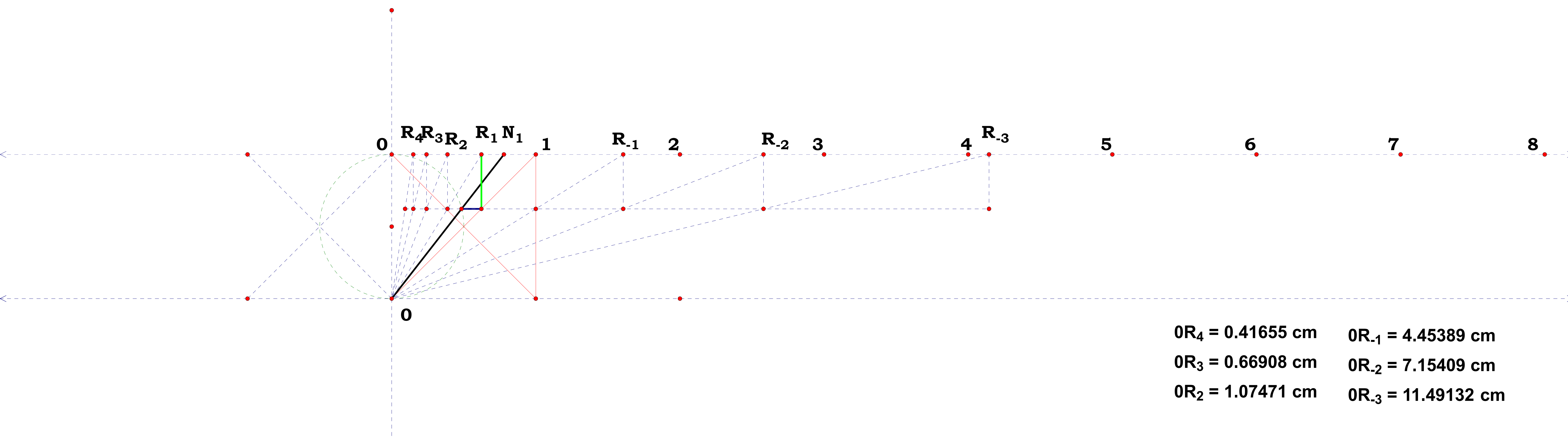
Base Figure

$0R_1$ = 1.72627 cm

R_1 = 0.62256

N_1 = 0.77863

$$\frac{1}{N_1^2+1} - R_1 = 0.00000$$



$0R_4$ = 0.41655 cm

$0R_3$ = 0.66908 cm

$0R_2$ = 1.07471 cm

$0R_{-1}$ = 4.45389 cm

$0R_{-2}$ = 7.15409 cm

$0R_{-3}$ = 11.49132 cm

Doc N[1]
Move N[1] -> 1
Move N[1] -> 2
Move N[1] -> 3
Move N[1] -> 4
Move N[1] -> 5
Move N[1] -> 6
Move N[1] -> 7
Move N[1] -> 8

Unit = 2.79400 cm

n_1 = 2.19307 cm

Hide Intersections
Show Lines
Hide Objects
Exponential Series

$0R_1$ = 4.51539 cm

R_1 = 1.61610

N_1 = 0.78492

$(N_1^2+1)-R_1$ = 0.00000

$(N_1^2+1)^{-3}-R_{-3}$ = 0.00000

$(N_1^2+1)^{-2}-R_{-2}$ = 0.00000

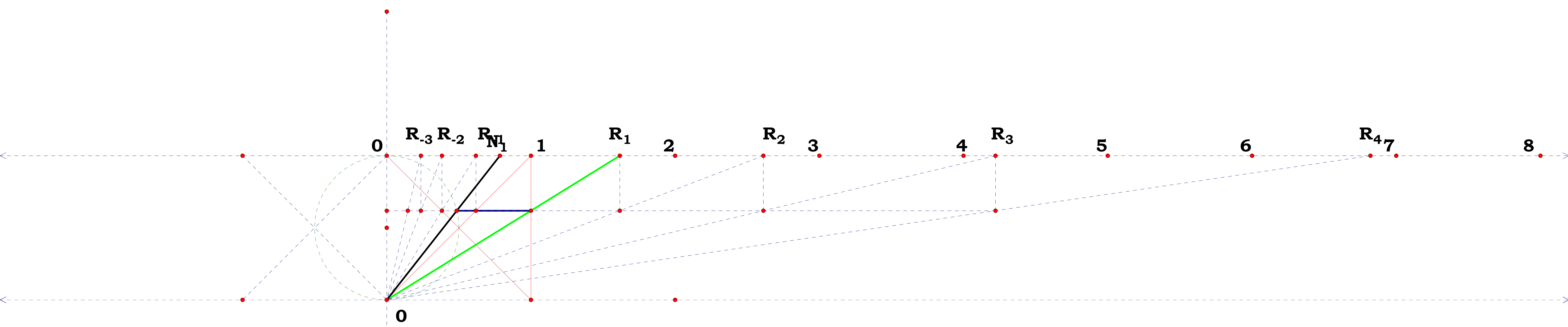
$(N_1^2+1)^{-1}-R_{-1}$ = 0.00000

$(N_1^2+1)^{1}-R_1$ = 0.00000

$(N_1^2+1)^{2}-R_2$ = 0.00000

$(N_1^2+1)^{3}-R_3$ = 0.00000

$(N_1^2+1)^{4}-R_4$ = 0.00000



$\frac{R_{-2}}{R_{-3}}$ = 1.61610

N_1^2+1 = 1.61610

R_{-3} = 0.23692

R_{-2} = 0.38288

R_{-1} = 0.61877

R_2 = 2.61179

R_3 = 4.22092

R_4 = 6.82144

$0R_{-3}$ = 0.66194 cm

$0R_{-2}$ = 1.06976 cm

$0R_{-1}$ = 1.72885 cm

$0R_2$ = 7.29734 cm

$0R_3$ = 11.79325 cm

$0R_4$ = 19.05911 cm

Doc N[1]

Move N[1] -> 1

Move N[1] -> 2

Move N[1] -> 3

Move N[1] -> 4

Move N[1] -> 5

Move N[1] -> 6

Move N[1] -> 7

Move N[1] -> 8

Unit = 2.79400 cm

n_1 = 4.52967 cm

Hide Intersections

Show Lines

Hide Segments

Exponential Series

Base Figure

$0R_1$ = 3.85703 cm

R_1 = 1.38047

N_1 = 1.62121

$\frac{N_1^2+1}{N_1^2} - R_1 = 0.00000$

$\frac{N_1^2+1}{N_1^2}^{\,-3} - R_{-3} = 0.00000$

$\frac{N_1^2+1}{N_1^2}^{\,-2} - R_{-2} = 0.00000$

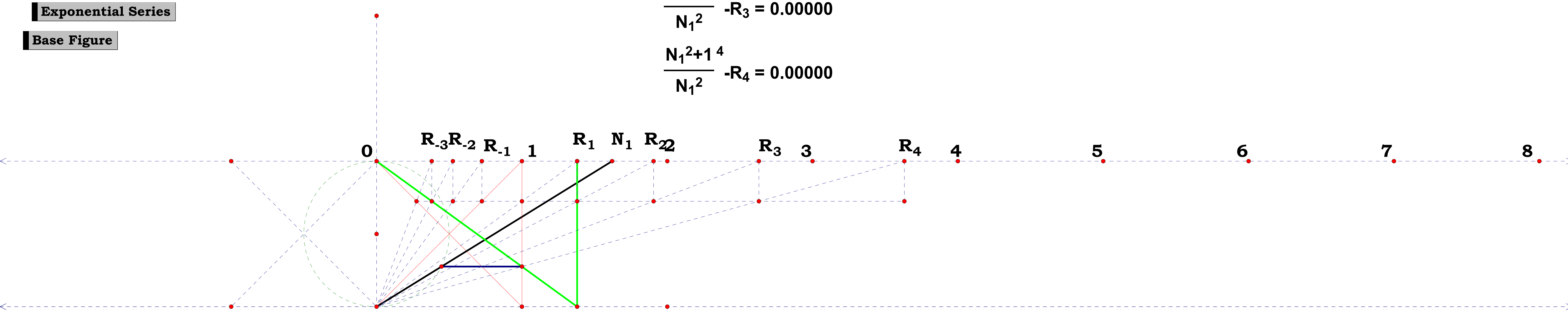
$\frac{N_1^2+1}{N_1^2}^{\,-1} - R_{-1} = 0.00000$

$\frac{N_1^2+1}{N_1^2}^{\,1} - R_1 = 0.00000$

$\frac{N_1^2+1}{N_1^2}^{\,2} - R_2 = 0.00000$

$\frac{N_1^2+1}{N_1^2}^{\,3} - R_3 = 0.00000$

$\frac{N_1^2+1}{N_1^2}^{\,4} - R_4 = 0.00000$



$\frac{R_{-2}}{R_{-3}} = 1.38047$

$\frac{N_1^2+1}{N_1^2} = 1.38047$

R_{-3} = 0.38012

R_{-2} = 0.52474

R_{-1} = 0.72439

R_2 = 1.90570

R_3 = 2.63076

R_4 = 3.63168

$0R_{-3}$ = 1.06205 cm

$0R_{-2}$ = 1.46613 cm

$0R_{-1}$ = 2.02395 cm

$0R_2$ = 5.32452 cm

$0R_3$ = 7.35034 cm

$0R_4$ = 10.14692 cm

Doc N[1]

Move N[1] -> 1

Move N[1] -> 2

Move N[1] -> 3

Move N[1] -> 4

Move N[1] -> 5

Move N[1] -> 6

Move N[1] -> 7

Move N[1] -> 8

Unit = 2.77283 cm

n_1 = 2.35105 cm

Hide Intersections

Show Lines

Hide Objects

Exponential Series

$0R_1$ = 3.85699 cm

R_1 = 1.39099

N_1 = 0.84789

$\frac{1}{N_1^2} - R_1 = 0.00000$

$\left(\frac{1}{N_1^2}\right)^{-3} - R_{-3} = 0.00000$

$\left(\frac{1}{N_1^2}\right)^{-2} - R_{-2} = 0.00000$

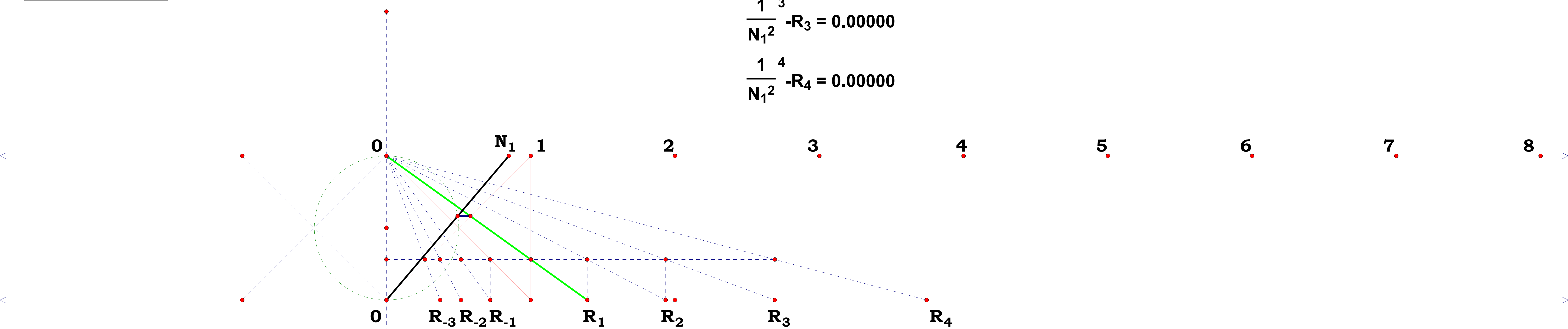
$\left(\frac{1}{N_1^2}\right)^{-1} - R_{-1} = 0.00000$

$\left(\frac{1}{N_1^2}\right)^{1} - R_{1} = 0.00000$

$\left(\frac{1}{N_1^2}\right)^{2} - R_{2} = 0.00000$

$\left(\frac{1}{N_1^2}\right)^{3} - R_{3} = 0.00000$

$\left(\frac{1}{N_1^2}\right)^{4} - R_{4} = 0.00000$



$\frac{R_{-2}}{R_{-3}} = 1.39099$

$\frac{1}{N_1^2} = 1.39099$

R_{-3} = 0.37156

R_{-2} = 0.51683

R_{-1} = 0.71891

R_2 = 1.93486

R_3 = 2.69137

R_4 = 3.74367

$0R_{-3}$ = 1.03027 cm

$0R_{-2}$ = 1.43310 cm

$0R_{-1}$ = 1.99342 cm

$0R_2$ = 5.36503 cm

$0R_3$ = 7.46271 cm

$0R_4$ = 10.38056 cm

Doc N[1]

Move N[1] -> 1

Move N[1] -> 2

Move N[1] -> 3

Move N[1] -> 4

Move N[1] -> 5

Move N[1] -> 6

Move N[1] -> 7

Move N[1] -> 8

Unit = 2.77283 cm

n_1 = 3.26122 cm

Show Lines

Hide Segments

Base Figure

Exponential Series

$0R_1$ = 1.36837 cm

R_1 = 0.49349

N_1 = 1.17613

$\frac{N_1}{N_1^2+1} - R_1 = 0.00000$

$\left(\frac{N_1}{N_1^2+1}\right)^4 - R_4 = 0.00000$

$\left(\frac{N_1}{N_1^2+1}\right)^3 - R_3 = 0.00000$

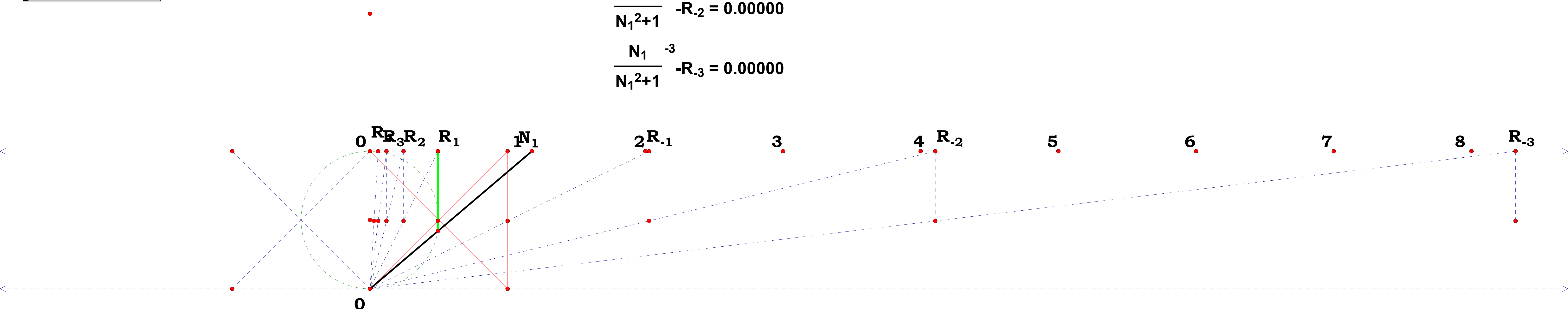
$\left(\frac{N_1}{N_1^2+1}\right)^2 - R_2 = 0.00000$

$\left(\frac{N_1}{N_1^2+1}\right)^1 - R_1 = 0.00000$

$\left(\frac{N_1}{N_1^2+1}\right)^{-1} - R_{-1} = 0.00000$

$\left(\frac{N_1}{N_1^2+1}\right)^{-2} - R_{-2} = 0.00000$

$\left(\frac{N_1}{N_1^2+1}\right)^{-3} - R_{-3} = 0.00000$



$\frac{R_4}{R_3}$ = 0.49349

$\frac{N_1}{N_1^2+1}$ = 0.49349

R_4 = 0.05931

R_3 = 0.12018

R_2 = 0.24353

R_{-1} = 2.02638

R_{-2} = 4.10620

R_{-3} = 8.32071

$0R_4$ = 0.16445 cm

$0R_3$ = 0.33324 cm

$0R_2$ = 0.67528 cm

$0R_{-1}$ = 5.61880 cm

$0R_{-2}$ = 11.38581 cm

$0R_{-3}$ = 23.07194 cm

Doc N[1]

Move N[1] -> 1

Move N[1] -> 2

Move N[1] -> 3

Move N[1] -> 4

Move N[1] -> 5

Move N[1] -> 6

Move N[1] -> 7

Move N[1] -> 8

Unit = 2.79400 cm

n_1 = 4.21217 cm

$0R_1$ = 1.85331 cm

R_1 = 0.66332

N_1 = 1.50758

$\frac{1}{N_1}-R_1 = 0.00000$

$\frac{1}{N_1}^{4}-R_4 = 0.00000$

$\frac{1}{N_1}^{3}-R_3 = 0.00000$

$\frac{1}{N_1}^{2}-R_2 = 0.00000$

$\frac{1}{N_1}^{1}-R_1 = 0.00000$

$\frac{1}{N_1}^{-1}-R_{-1} = 0.00000$

$\frac{1}{N_1}^{-2}-R_{-2} = 0.00000$

$\frac{1}{N_1}^{-3}-R_{-3} = 0.00000$

Hide Intersections

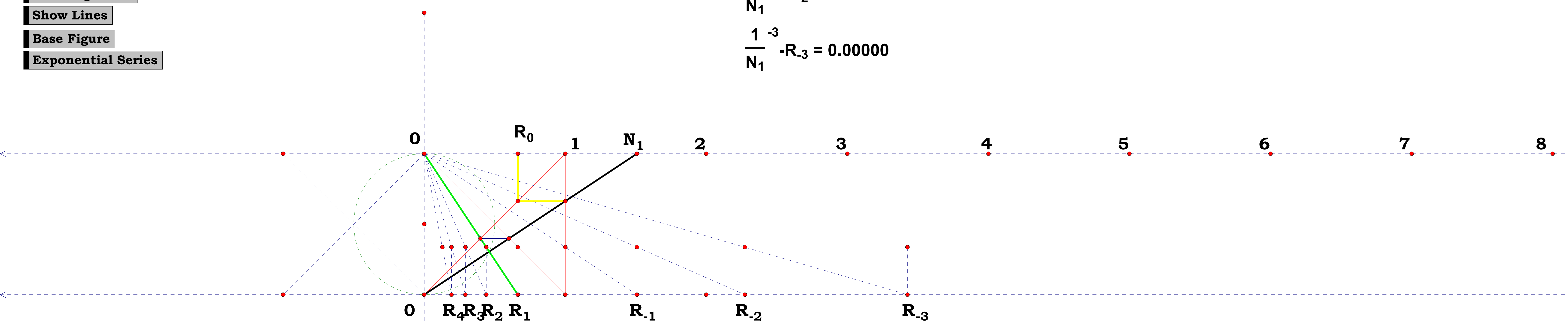
Hide Objects

Hide Segments

Show Lines

Base Figure

Exponential Series



$\frac{R_4}{R_3} = 0.66332$

$\frac{1}{N_1} = 0.66332$

R_4 = 0.19359

R_3 = 0.29185

R_2 = 0.43999

R_{-1} = 1.50758

R_{-2} = 2.27278

R_{-3} = 3.42640

$0R_4$ = 0.54089 cm

$0R_3$ = 0.81543 cm

$0R_2$ = 1.22933 cm

$0R_{-1}$ = 4.21217 cm

$0R_{-2}$ = 6.35016 cm

$0R_{-3}$ = 9.57335 cm

Circle

Show Lines

0

1

2

3

4

5

6

7

8

9

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11

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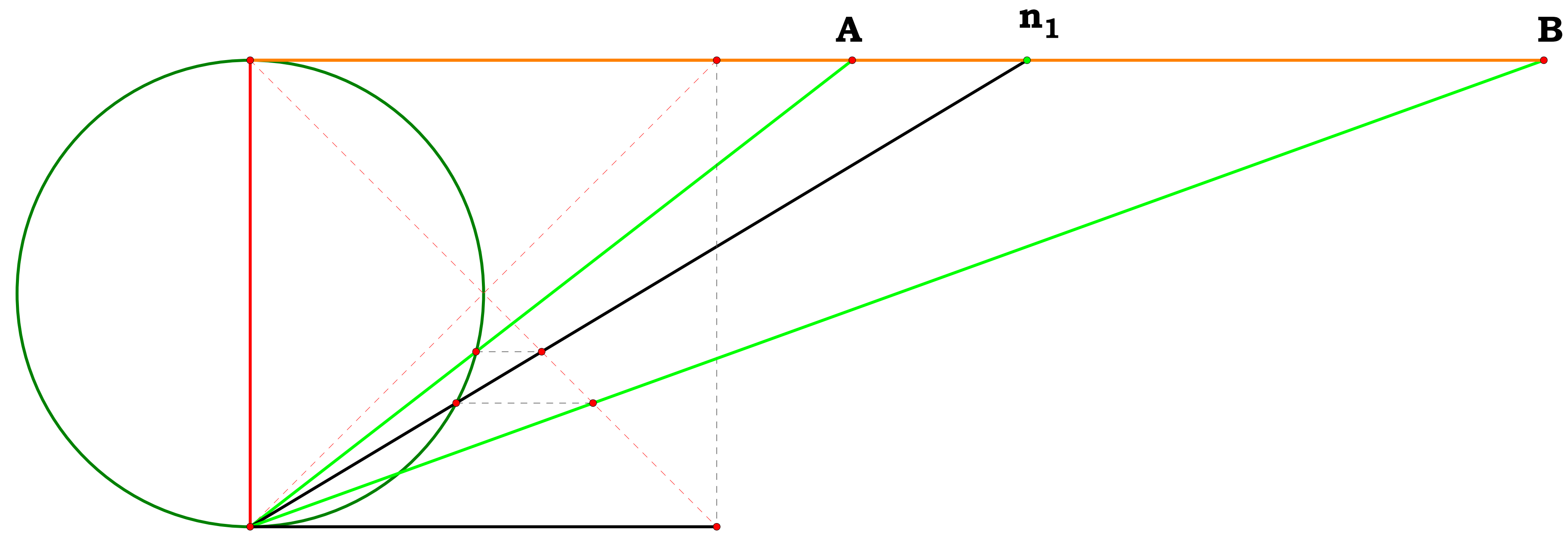
15

$N_1 = 1.66534$

$A = 1.29048$ $\sqrt{N_1} = 1.29048$ $\sqrt{N_1} - A = 0.00000$

$B = 2.77337$ $N_1^2 = 2.77337$ $N_1^2 - B = 0.00000$



Points

$$A^2 - B = 0.00000$$
$$(A \cdot B) - C = 0.00000$$
$$B^2 - D = 0.00000$$
$$(B \cdot C) - E = 0.00000$$

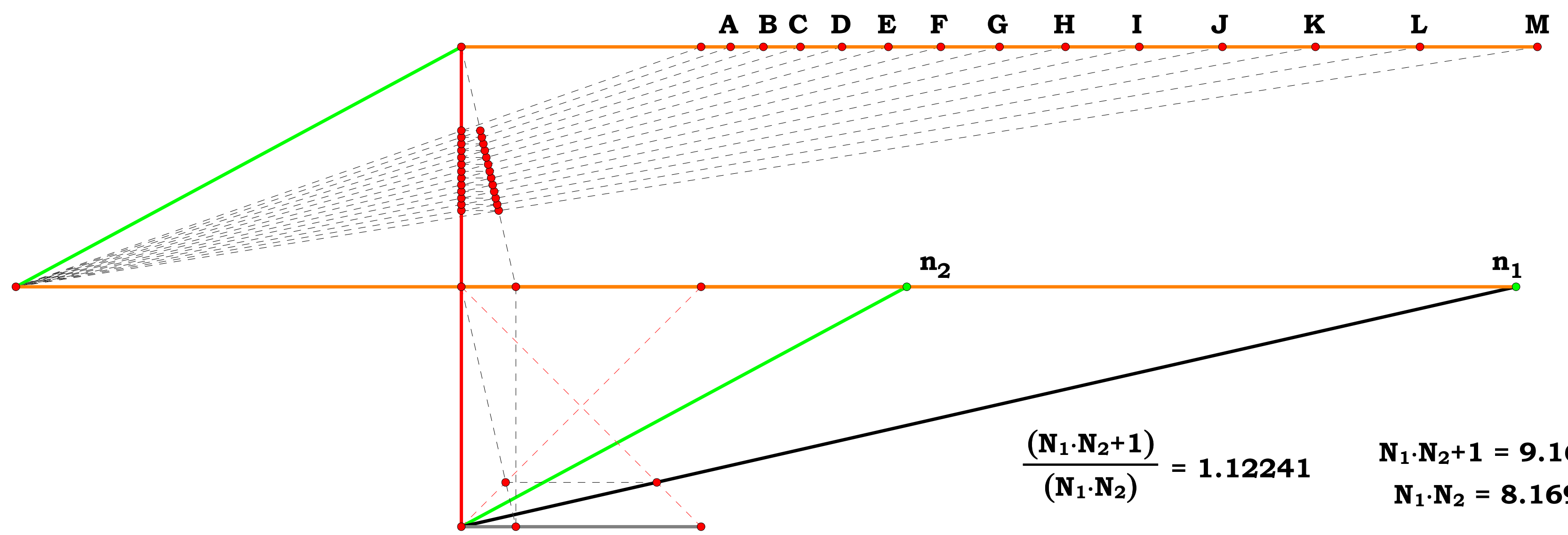
$$C^2 - F = 0.00000$$
$$(C \cdot D) - G = 0.00000$$
$$D^2 - H = 0.00000$$
$$(D \cdot E) - I = 0.00000$$

$$E^2 - J = 0.00000$$
$$(E \cdot F) - K = 0.00000$$
$$F^2 - L = 0.00000$$
$$(F \cdot G) - M = 0.00000$$

$$\frac{N_1 \cdot N_2 + 1}{N_1 \cdot N_2}^{1} - A = 0.00000$$
$$\frac{(N_1 \cdot N_2 + 1)^{2}}{(N_1 \cdot N_2)} - B = 0.00000$$
$$\frac{(N_1 \cdot N_2 + 1)^{3}}{(N_1 \cdot N_2)} - C = 0.00000$$
$$\frac{(N_1 \cdot N_2 + 1)^{4}}{(N_1 \cdot N_2)} - D = 0.00000$$

$$\frac{(N_1 \cdot N_2 + 1)^{5}}{(N_1 \cdot N_2)} - E = 0.00000$$
$$\frac{(N_1 \cdot N_2 + 1)^{6}}{(N_1 \cdot N_2)} - F = 0.00000$$
$$\frac{(N_1 \cdot N_2 + 1)^{7}}{(N_1 \cdot N_2)} - G = 0.00000$$
$$\frac{(N_1 \cdot N_2 + 1)^{8}}{(N_1 \cdot N_2)} - H = 0.00000$$

$$\frac{(N_1 \cdot N_2 + 1)^{9}}{(N_1 \cdot N_2)} - I = 0.00000$$
$$\frac{(N_1 \cdot N_2 + 1)^{10}}{(N_1 \cdot N_2)} - J = 0.00000$$
$$\frac{(N_1 \cdot N_2 + 1)^{11}}{(N_1 \cdot N_2)} - K = 0.00000$$
$$\frac{(N_1 \cdot N_2 + 1)^{12}}{(N_1 \cdot N_2)} - L = 0.00000$$
$$\frac{(N_1 \cdot N_2 + 1)^{13}}{(N_1 \cdot N_2)} - M = 0.00000$$



$$\frac{(N_1 \cdot N_2 + 1)}{(N_1 \cdot N_2)} = 1.12241$$

$$N_1 \cdot N_2 + 1 = 9.16907$$
$$N_1 \cdot N_2 = 8.16907$$

$$A^3 - C = 0.00000$$
$$B^3 - F = 0.00000$$
$$C^3 - I = 0.00000$$
$$D^3 - L = 0.00000$$

$$N_1 = 4.39883$$
$$N_2 = 1.85710$$

$$A = 1.12241$$
$$B = 1.25981$$
$$C = 1.41403$$
$$D = 1.58712$$
$$E = 1.78141$$

$$F = 1.99947$$
$$G = 2.24424$$
$$H = 2.51896$$
$$I = 2.82731$$

$$J = 3.17341$$
$$K = 3.56188$$
$$L = 3.99790$$
$$M = 4.48729$$

$$A^2 = 1.25981$$
$$A \cdot B = 1.41403$$
$$B^2 = 1.58712$$
$$B \cdot C = 1.78141$$

$$C^2 = 1.99947$$
$$C \cdot D = 2.24424$$
$$D^2 = 2.51896$$
$$D \cdot E = 2.82731$$

$$E^2 = 3.17341$$
$$E \cdot F = 3.56188$$
$$F^2 = 3.99790$$
$$F \cdot G = 4.48729$$

Circle

Show Lines

0

1

2

3

4

5

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11

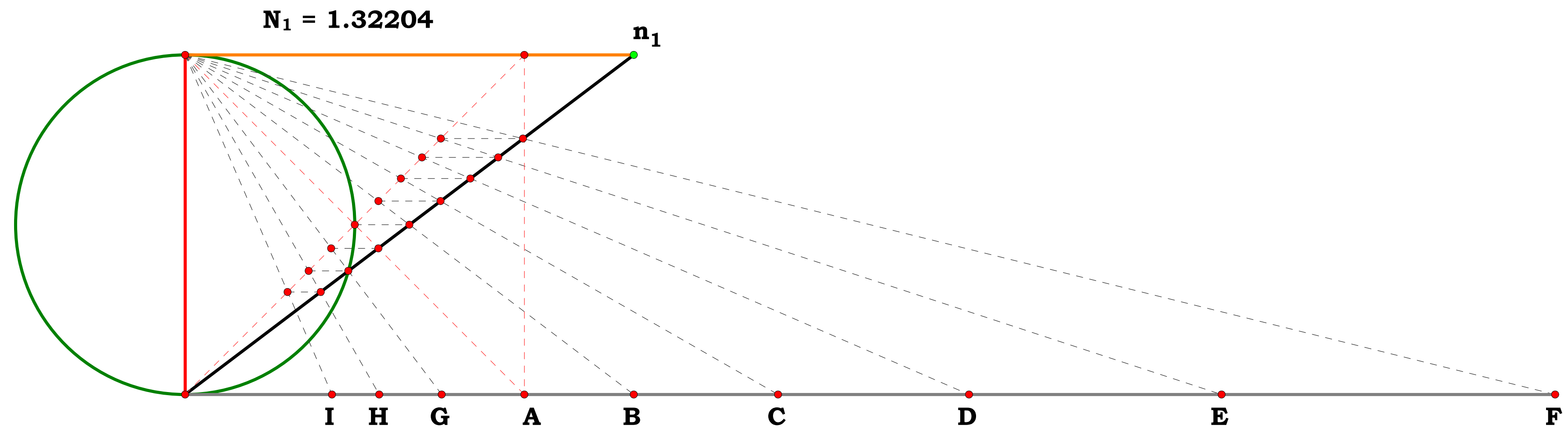
12

13

14

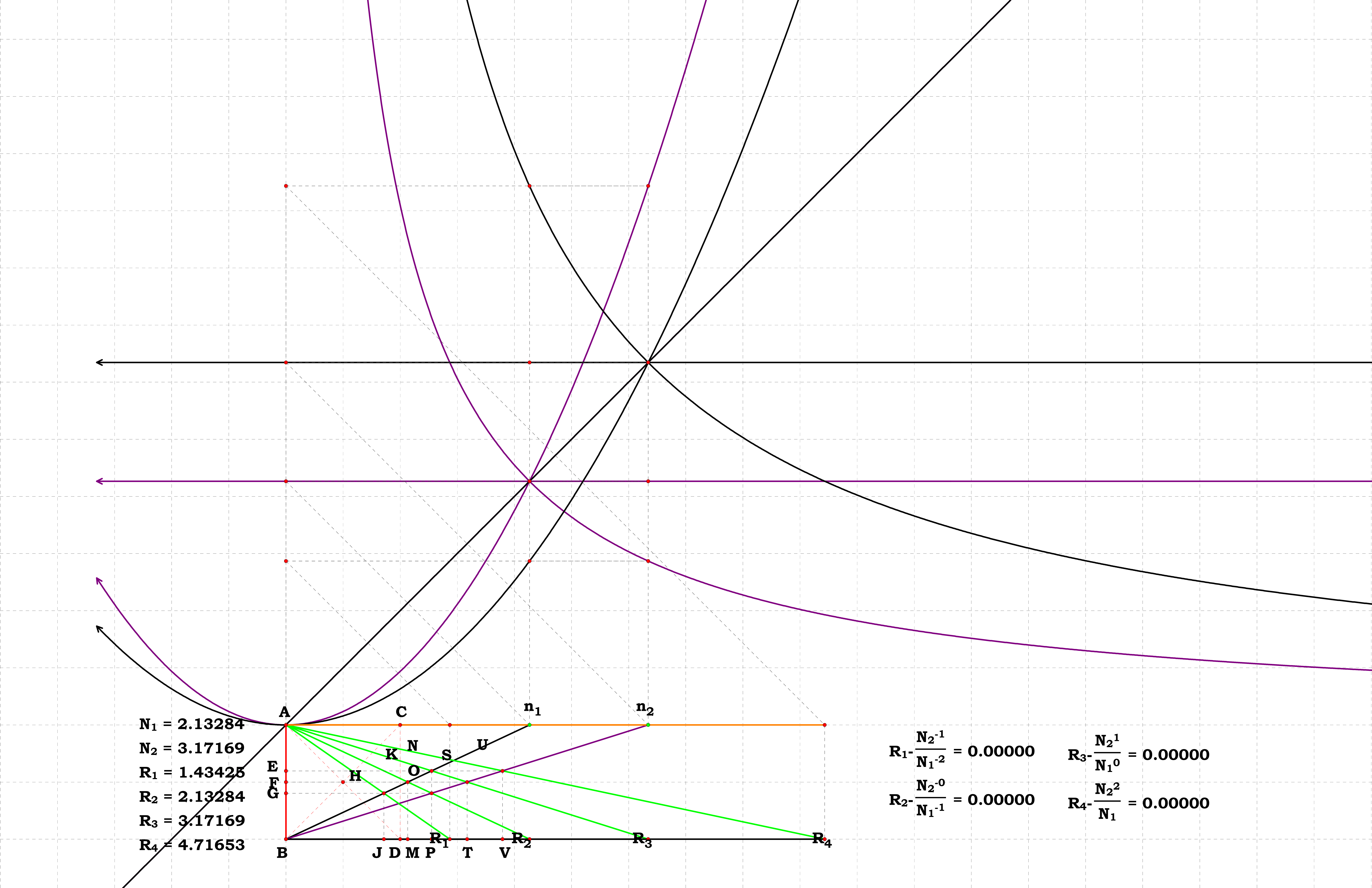
15

A = 1.00000	N_1^{0}-A = 0.00000
B = 1.32204	N_1^{1}-B = 0.00000
C = 1.74778	N_1^{2}-C = 0.00000
D = 2.31062	N_1^{3}-D = 0.00000
E = 3.05473	N_1^{4}-E = 0.00000
F = 4.03846	N_1^{5}-F = 0.00000
G = 0.75641	N_1^{-1}-G = 0.00000
H = 0.57216	N_1^{-2}-H = 0.00000
I = 0.43278	N_1^{-3}-I = 0.00000



Points

Hide Action Buttons


N₁ = 2.13284
N₂ = 3.17169
R₁ = 1.43425
R₂ = 2.13284
R₃ = 3.17169
R₄ = 4.71653
A
B
C
D
E
F
G
H
J
K
M
N
O
P
S
T
U
V
n₁
n₂
R₁
R₂
R₃
R₄
$R_1 - \frac{N_2^{-1}}{N_1^{-2}} = 0.00000$
$R_2 - \frac{N_2^{-0}}{N_1^{-1}} = 0.00000$
$R_3 - \frac{N_2^{1}}{N_1^{0}} = 0.00000$
$R_4 - \frac{N_2^{2}}{N_1} = 0.00000$

Circle
Show Lines
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

Points

$N_1 = 3.46347$

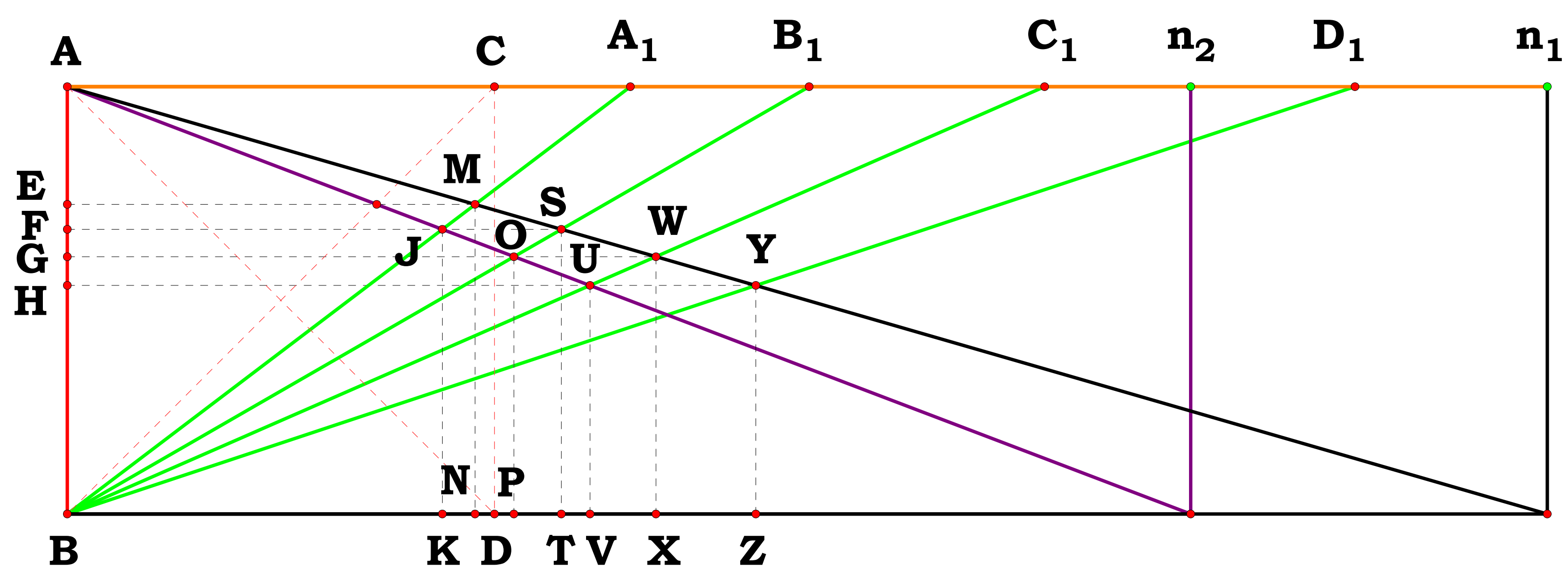
$N_2 = 2.62874$

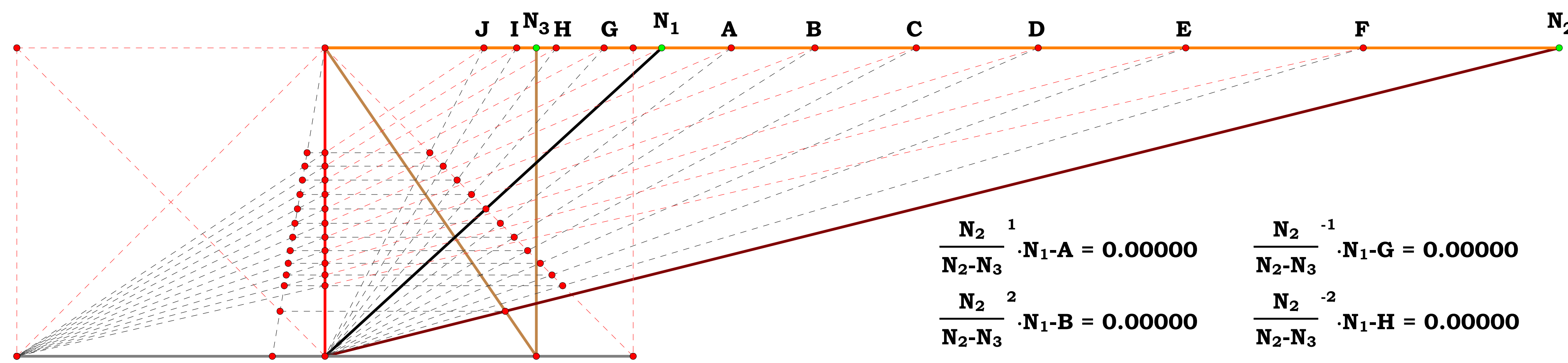
$A_1 = 1.31754$

$B_1 = 1.73591$

$C_1 = 2.28713$

$D_1 = 3.01339$





$$\frac{N_1^{\frac{1}{4}}\cdot N_2}{N_2\text{-}N_3}^{4}\text{-}D = 0.00000$$

$$\frac{N_1\cdot N_2^4}{(N_2\text{-}N_3)^4}\text{-}D = 0.00000$$

$$\frac{N_2}{N_2\text{-}N_3} = 1.20647$$

$N_1 = 1.09230$

$N_2 = 4.00439$

$N_3 = 0.68530$

A = 1.31783

B = 1.58992

C = 1.91819

D = 2.31425

E = 2.79207

F = 3.36855

G = 0.90537

H = 0.75043

I = 0.62200

J = 0.51556

$$\frac{N_2}{N_2\text{-}N_3}^{1}\cdot N_1\text{-}A = 0.00000$$

$$\frac{N_2}{N_2\text{-}N_3}^{2}\cdot N_1\text{-}B = 0.00000$$

$$\frac{N_2}{N_2\text{-}N_3}^{3}\cdot N_1\text{-}C = 0.00000$$

$$\frac{N_2}{N_2\text{-}N_3}^{4}\cdot N_1\text{-}D = 0.00000$$

$$\frac{N_2}{N_2\text{-}N_3}^{5}\cdot N_1\text{-}E = 0.00000$$

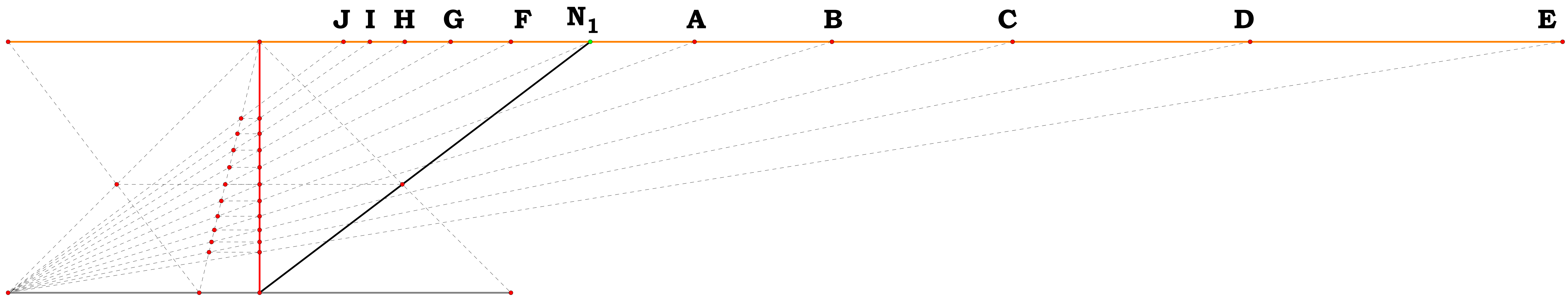
$$\frac{N_2}{N_2\text{-}N_3}^{6}\cdot N_1\text{-}F = 0.00000$$

$$\frac{N_2}{N_2\text{-}N_3}^{-1}\cdot N_1\text{-}G = 0.00000$$

$$\frac{N_2}{N_2\text{-}N_3}^{-2}\cdot N_1\text{-}H = 0.00000$$

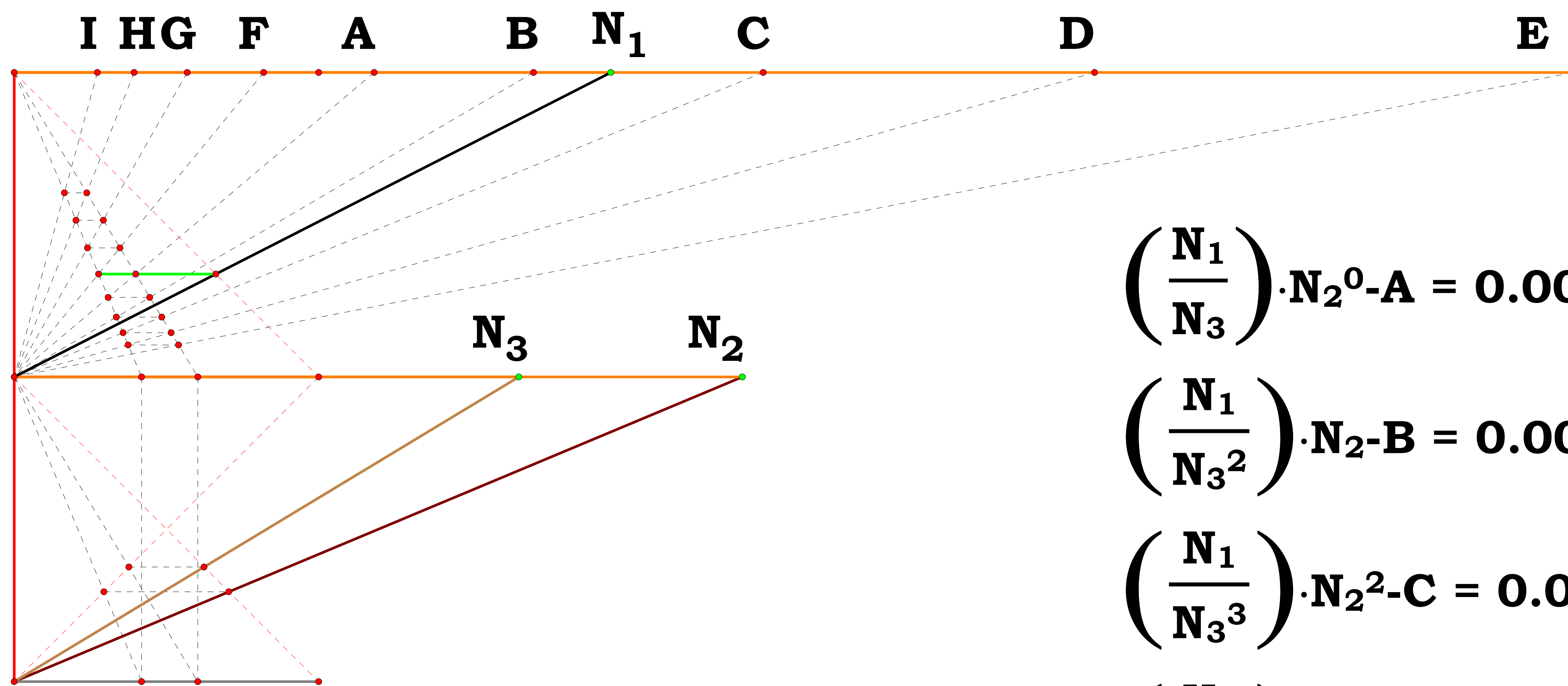
$$\frac{N_2}{N_2\text{-}N_3}^{-3}\cdot N_1\text{-}I = 0.00000$$

$$\frac{N_2}{N_2\text{-}N_3}^{-4}\cdot N_1\text{-}J = 0.00000$$



$N_1 = 1.31554$

A = 1.73065	F = 1.00000	N_1^2-A = 0.00000	N_1^0-F = 0.00000
B = 2.27675	G = 0.76014	N_1^3-B = 0.00000	N_1^{-1}-G = 0.00000
C = 2.99516	H = 0.57782	N_1^4-C = 0.00000	N_1^{-2}-H = 0.00000
D = 3.94026	I = 0.43922	N_1^5-D = 0.00000	N_1^{-3}-I = 0.00000
E = 5.18358	J = 0.33387	N_1^6-E = 0.00000	N_1^{-4}-J = 0.00000



$N_1 = 1.95987$

$N_2 = 2.39124$

$N_3 = 1.65771$

A = 1.18227

B = 1.70541

C = 2.46005

D = 3.54859

E = 5.11881

F = 0.81960

G = 0.56819

H = 0.39389

I = 0.27306

$$\left(\frac{N_1}{N_3}\right)\cdot N_2^{0}-A = 0.00000$$

$$\left(\frac{N_1}{N_3^{2}}\right)\cdot N_2-B = 0.00000$$

$$\left(\frac{N_1}{N_3^{3}}\right)\cdot N_2^{2}-C = 0.00000$$

$$\left(\frac{N_1}{N_3^{4}}\right)\cdot N_2^{3}-D = 0.00000$$

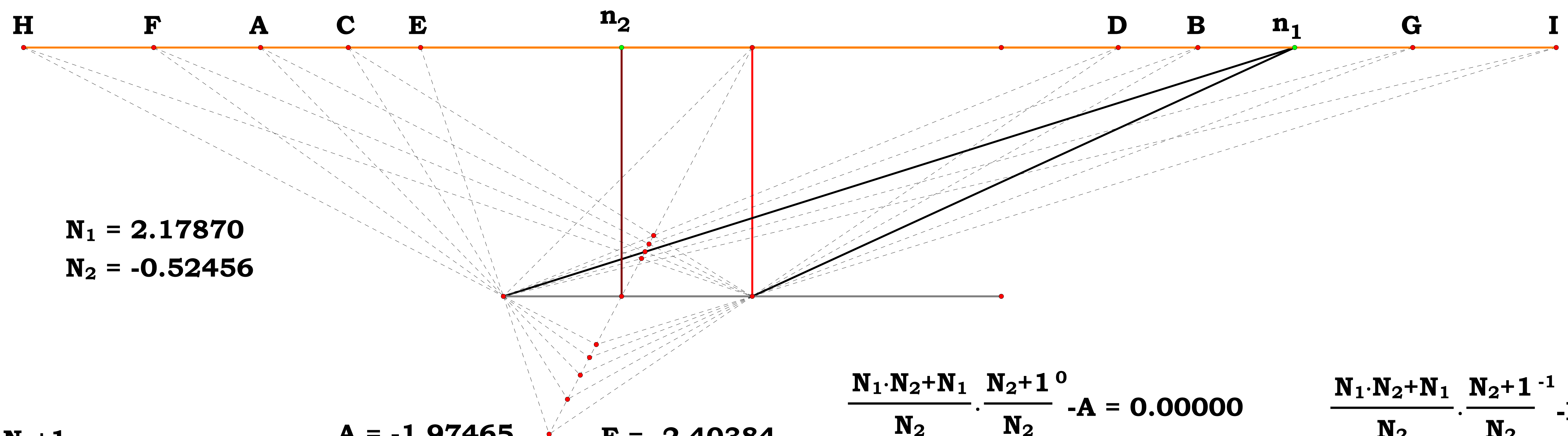
$$\left(\frac{N_1}{N_3^{5}}\right)\cdot N_2^{4}-E = 0.00000$$

$$\left(\frac{N_1}{N_3^{0}}\right)\cdot N_2^{-1}-F = 0.00000$$

$$\left(\frac{N_1}{N_3^{-1}}\right)\cdot N_2^{-2}-G = 0.00000$$

$$\left(\frac{N_1}{N_3^{-2}}\right)\cdot N_2^{-3}-H = 0.00000$$

$$\left(\frac{N_1}{N_3^{-3}}\right)\cdot N_2^{-4}-I = 0.00000$$



$N_1 = 2.17870$

$N_2 = -0.52456$

$$\frac{N_2+1}{N_2} = -0.90634$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} = -1.97465$$

A = -1.97465

B = 1.78970

C = -1.62208

D = 1.47016

E = -1.33247

F = -2.40384

G = 2.65225

H = -2.92632

I = 3.22872

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{0} - A = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{1} - B = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{2} - C = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{3} - D = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{4} - E = 0.00000$$

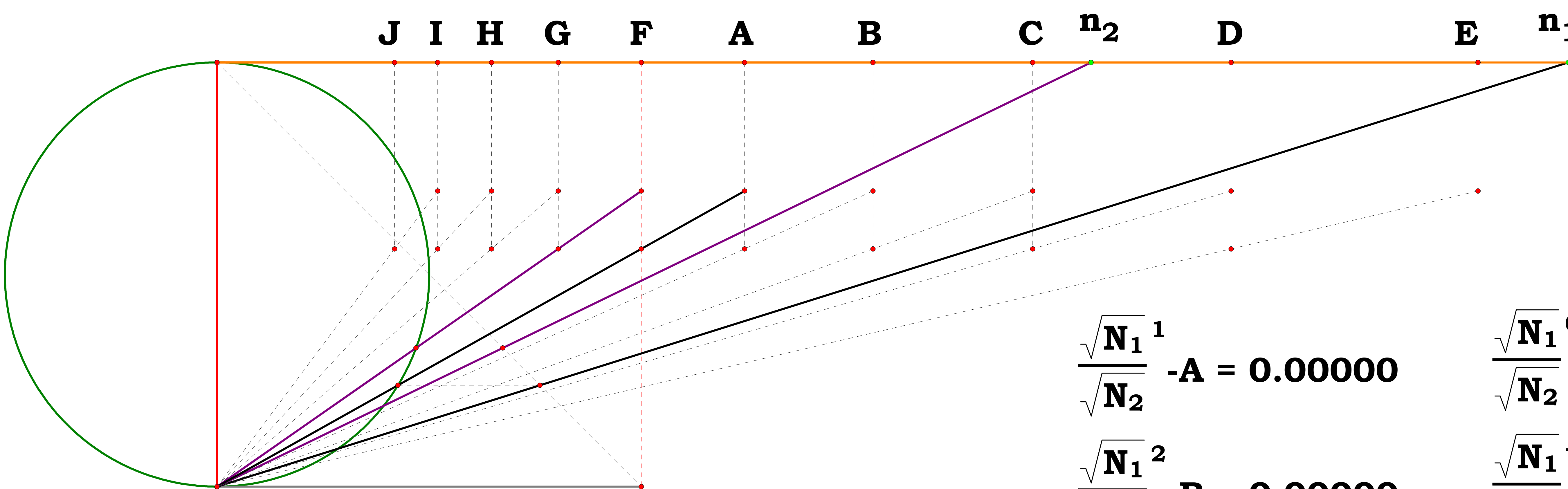
$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{-1} - N_1 = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{-2} - F = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{-3} - G = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{-4} - H = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{-5} - I = 0.00000$$



$$\frac{\sqrt{N_1}}{\sqrt{N_2}} = 1.24338$$

$N_1 = 3.18458$

$N_2 = 2.05988$

A = 1.24338

B = 1.54601

C = 1.92228

D = 2.39013

E = 2.97185

F = 1.00000

G = 0.80426

H = 0.64683

I = 0.52022

J = 0.41839

$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{1} - A = 0.00000$$

$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{2} - B = 0.00000$$

$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{3} - C = 0.00000$$

$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{4} - D = 0.00000$$

$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{5} - E = 0.00000$$

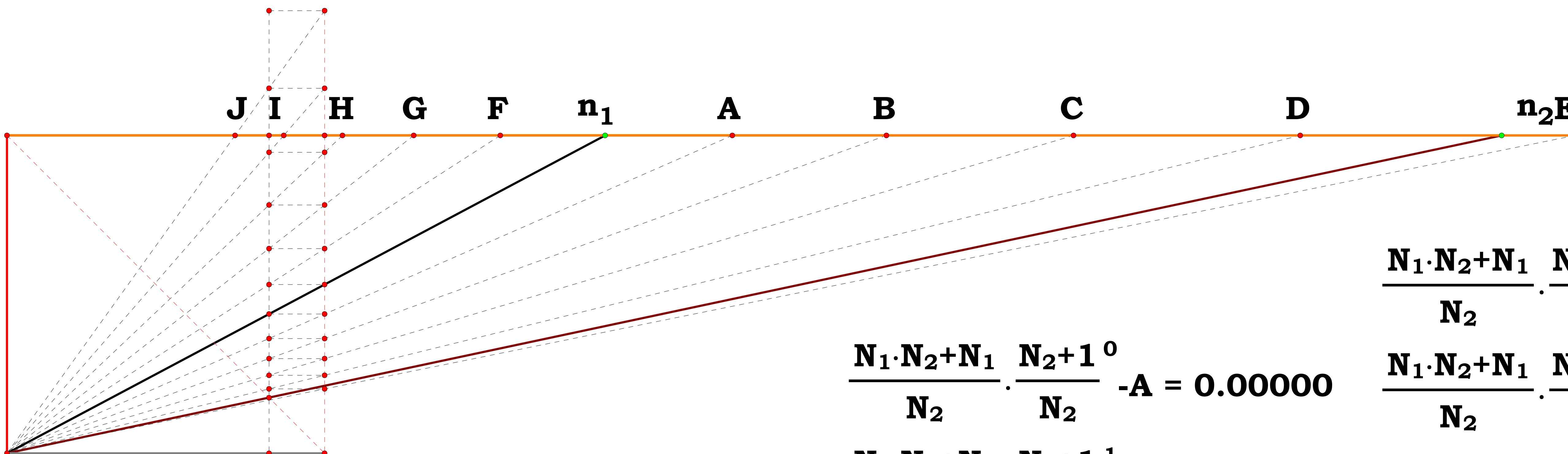
$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{0} - F = 0.00000$$

$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{-1} - G = 0.00000$$

$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{-2} - H = 0.00000$$

$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{-3} - I = 0.00000$$

$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{-4} - J = 0.00000$$



$$\frac{N_1 \cdot N_2 + N_1}{N_2} = 2.28293$$

$$\frac{N_2+1}{N_2} = 1.21256$$

$N_1 = 1.88273$

$N_2 = 4.70446$

A = 2.28293

B = 2.76820

C = 3.35663

D = 4.07012

E = 4.93529

F = 1.55269

G = 1.28050

H = 1.05603

I = 0.87090

J = 0.71823

$$\frac{N_1 \cdot N_2 + N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{0} - A = 0.00000$$

$$\frac{N_1 \cdot N_2 + N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{1} - B = 0.00000$$

$$\frac{N_1 \cdot N_2 + N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{2} - C = 0.00000$$

$$\frac{N_1 \cdot N_2 + N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{3} - D = 0.00000$$

$$\frac{N_1 \cdot N_2 + N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{4} - E = 0.00000$$

$$\frac{N_1 \cdot N_2 + N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{-1} - N_1 = 0.00000$$

$$\frac{N_1 \cdot N_2 + N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{-2} - F = 0.00000$$

$$\frac{N_1 \cdot N_2 + N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{-3} - G = 0.00000$$

$$\frac{N_1 \cdot N_2 + N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{-4} - H = 0.00000$$

$$\frac{N_1 \cdot N_2 + N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{-5} - I = 0.00000$$

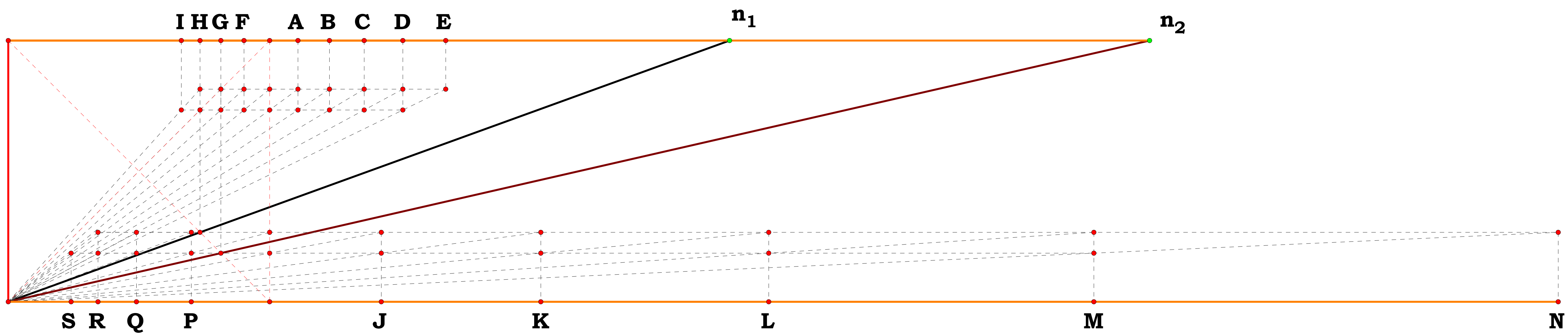
$$\frac{N_1 \cdot N_2 + N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{-6} - J = 0.00000$$

$$\frac{N_2\cdot(N_1+1)}{N_1\cdot(N_2+1)} = 1.10854$$

A = 1.10854
B = 1.22886
C = 1.36225
D = 1.51010
E = 1.67401
F = 0.90209
G = 0.81376
H = 0.73408
I = 0.66221

$$\frac{N_2\cdot(N_1+1)}{N_1\cdot(N_2+1)}^{1} - A = 0.00000$$
$$\frac{N_2\cdot(N_1+1)}{N_1\cdot(N_2+1)}^{2} - B = 0.00000$$
$$\frac{N_2\cdot(N_1+1)}{N_1\cdot(N_2+1)}^{3} - C = 0.00000$$
$$\frac{N_2\cdot(N_1+1)}{N_1\cdot(N_2+1)}^{4} - D = 0.00000$$
$$\frac{N_2\cdot(N_1+1)}{N_1\cdot(N_2+1)}^{5} - E = 0.00000$$

$$\frac{N_2\cdot(N_1+1)}{N_1\cdot(N_2+1)}^{-1} - F = 0.00000$$
$$\frac{N_2\cdot(N_1+1)}{N_1\cdot(N_2+1)}^{-2} - G = 0.00000$$
$$\frac{N_2\cdot(N_1+1)}{N_1\cdot(N_2+1)}^{-3} - H = 0.00000$$
$$\frac{N_2\cdot(N_1+1)}{N_1\cdot(N_2+1)}^{-4} - I = 0.00000$$



$$\frac{N_2+1}{N_1+1} = 1.42764$$

$N_1 = 2.75971$
$N_2 = 4.36750$

J = 1.42764
K = 2.03815
L = 2.90973
M = 4.15404
N = 5.93046

P = 0.70046
Q = 0.49064
R = 0.34367
S = 0.24073

$$\frac{N_2+1}{N_1+1}^{1} - J = 0.00000$$
$$\frac{N_2+1}{N_1+1}^{2} - K = 0.00000$$
$$\frac{N_2+1}{N_1+1}^{3} - L = 0.00000$$
$$\frac{N_2+1}{N_1+1}^{4} - M = 0.00000$$
$$\frac{N_2+1}{N_1+1}^{5} - N = 0.00000$$

$$\frac{N_2+1}{N_1+1}^{-1} - P = 0.00000$$
$$\frac{N_2+1}{N_1+1}^{-2} - Q = 0.00000$$
$$\frac{N_2+1}{N_1+1}^{-3} - R = 0.00000$$
$$\frac{N_2+1}{N_1+1}^{-4} - S = 0.00000$$

$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2} = 0.83725$$

$$\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1} = 1.12397$$

A = 0.83725
B = 0.94105
C = 1.05771
D = 1.18884
E = 1.33622

F = 0.74490
G = 0.66274
H = 0.58964
I = 0.52461

$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2}\cdot\left(\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1}\right)^{0} - A = 0.00000$$

$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2}\cdot\left(\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1}\right)^{1} - B = 0.00000$$

$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2}\cdot\left(\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1}\right)^{2} - C = 0.00000$$

$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2}\cdot\left(\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1}\right)^{3} - D = 0.00000$$

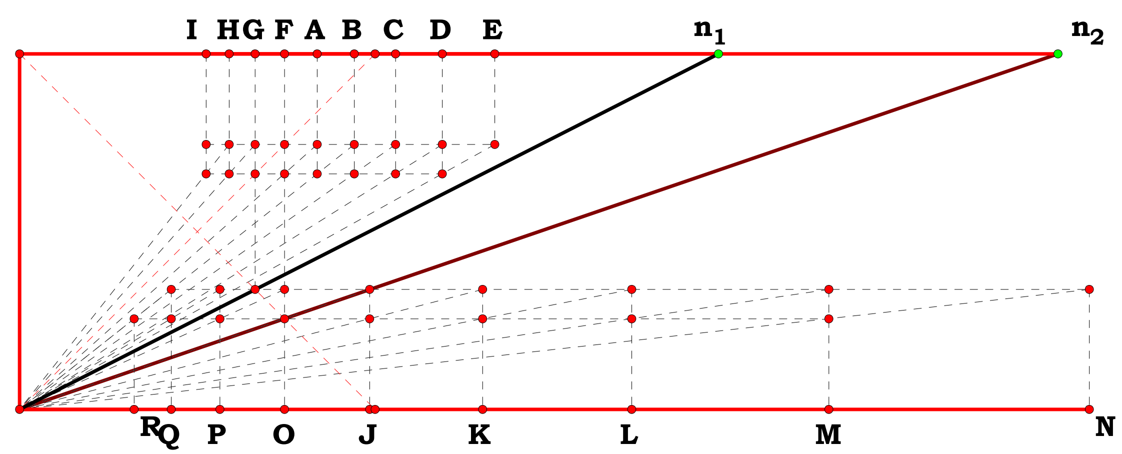
$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2}\cdot\left(\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1}\right)^{4} - E = 0.00000$$

$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2}\cdot\left(\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1}\right)^{-1} - F = 0.00000$$

$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2}\cdot\left(\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1}\right)^{-2} - G = 0.00000$$

$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2}\cdot\left(\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1}\right)^{-3} - H = 0.00000$$

$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2}\cdot\left(\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1}\right)^{-4} - I = 0.00000$$



$$\frac{N_2}{N_1+1} = 0.98482$$

$$\frac{N_2+1}{N_1+1} = 1.32208$$

N_1 = 1.96510
N_2 = 2.92011

J = 0.98482
K = 1.30202
L = 1.72138
M = 2.27580
N = 3.00879

O = 0.74490
P = 0.56343
Q = 0.42617
R = 0.32235

$$\frac{N_2}{N_1+1}\cdot\left(\frac{N_2+1}{N_1+1}\right)^{0} - J = 0.00000$$

$$\frac{N_2}{N_1+1}\cdot\left(\frac{N_2+1}{N_1+1}\right)^{1} - K = 0.00000$$

$$\frac{N_2}{N_1+1}\cdot\left(\frac{N_2+1}{N_1+1}\right)^{2} - L = 0.00000$$

$$\frac{N_2}{N_1+1}\cdot\left(\frac{N_2+1}{N_1+1}\right)^{3} - M = 0.00000$$

$$\frac{N_2}{N_1+1}\cdot\left(\frac{N_2+1}{N_1+1}\right)^{4} - N = 0.00000$$

$$\frac{N_2}{N_1+1}\cdot\left(\frac{N_2+1}{N_1+1}\right)^{-1} - O = 0.00000$$

$$\frac{N_2}{N_1+1}\cdot\left(\frac{N_2+1}{N_1+1}\right)^{-2} - P = 0.00000$$

$$\frac{N_2}{N_1+1}\cdot\left(\frac{N_2+1}{N_1+1}\right)^{-3} - Q = 0.00000$$

$$\frac{N_2}{N_1+1}\cdot\left(\frac{N_2+1}{N_1+1}\right)^{-4} - R = 0.00000$$

B = 1.31080
C = 1.71820
D = 2.25222
E = 2.95221
F = 3.86977
G = 5.07250

$$\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)} = 1.31080 \qquad \frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}^{1}-B = 0.00000$$

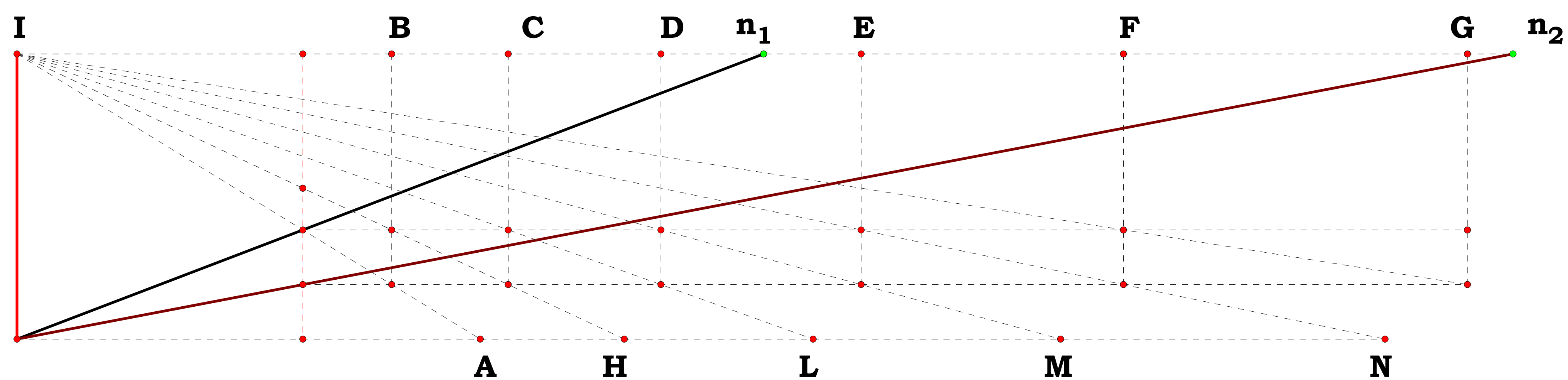
$$\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}^{2} = 1.71820 \qquad \frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}^{2}-C = 0.00000$$

$$\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}^{3} = 2.25222 \qquad \frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}^{3}-D = 0.00000$$

$$\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}^{4} = 2.95221 \qquad \frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}^{4}-E = 0.00000$$

$$\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}^{5} = 3.86977 \qquad \frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}^{5}-F = 0.00000$$

$$\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}^{6} = 5.07250 \qquad \frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}^{6}-G = 0.00000$$



$$\frac{N_1}{N_1-1}-A = 0.00000$$

$$\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2} = 2.12423$$

$N_1 = 2.61146$
$N_2 = 5.23175$

A = 1.62056
H = 2.12423
L = 2.78444
M = 3.64985
N = 4.78423

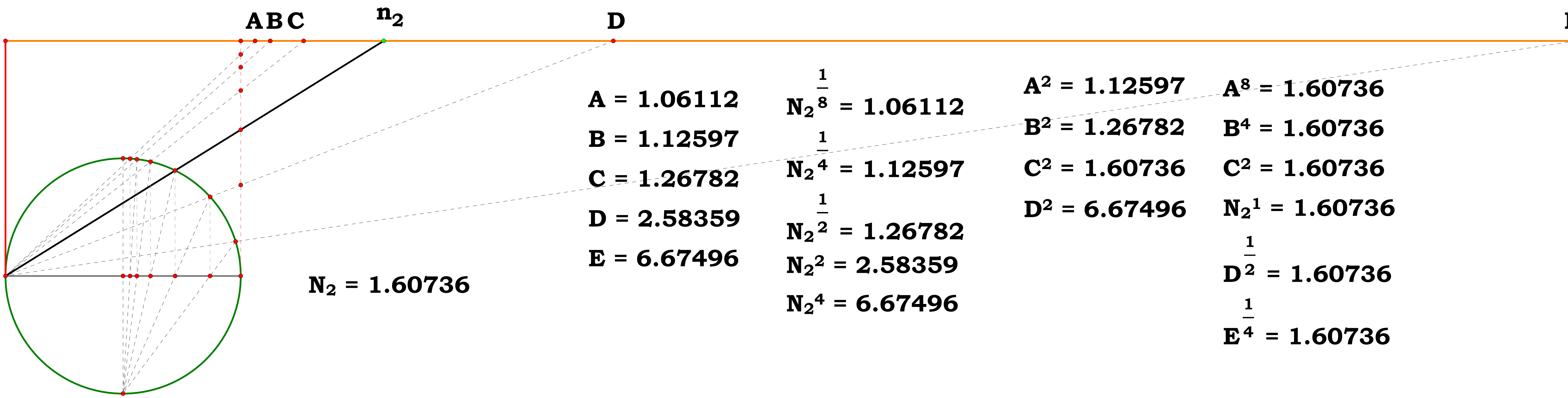
$$\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}^{-1} = 1.62056 \qquad \left(\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}^{-1}\right)-A = 0.00000$$

$$\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}^{0} = 2.12423 \qquad \left(\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}^{0}\right)-H = 0.00000$$

$$\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}^{1} = 2.78444 \qquad \left(\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}^{1}\right)-L = 0.00000$$

$$\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}^{2} = 3.64985 \qquad \left(\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}^{2}\right)-M = 0.00000$$

$$\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}^{3} = 4.78423 \qquad \left(\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}^{3}\right)-N = 0.00000$$



$N_2 = 1.60736$

$A = 1.06112$

$B = 1.12597$

$C = 1.26782$

$D = 2.58359$

$E = 6.67496$

$N_2^{\frac{1}{8}} = 1.06112$

$N_2^{\frac{1}{4}} = 1.12597$

$N_2^{\frac{1}{2}} = 1.26782$

$N_2^{2} = 2.58359$

$N_2^{4} = 6.67496$

$A^2 = 1.12597$

$B^2 = 1.26782$

$C^2 = 1.60736$

$D^2 = 6.67496$

$A^8 = 1.60736$

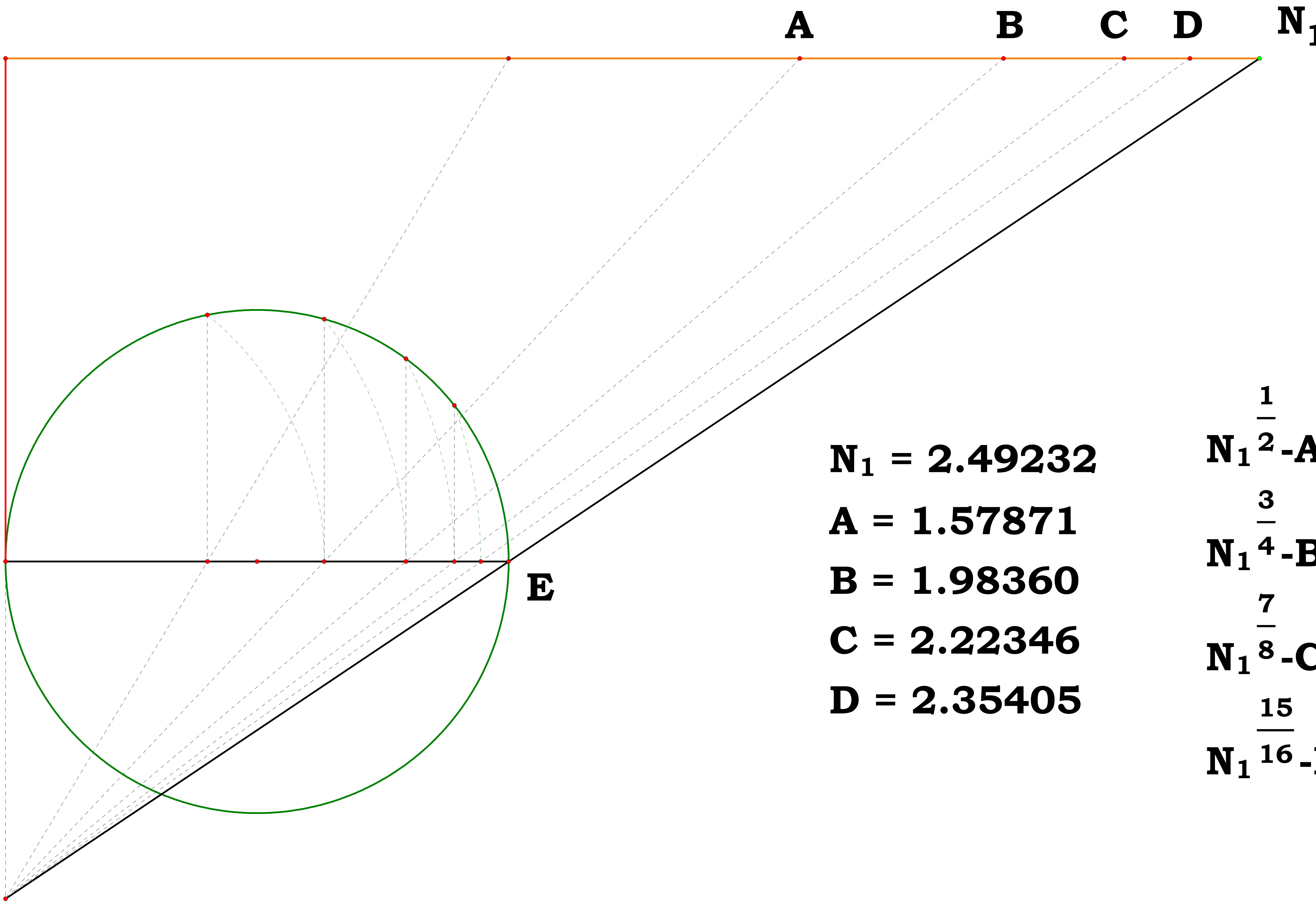
$B^4 = 1.60736$

$C^2 = 1.60736$

$N_2^1 = 1.60736$

$D^{\frac{1}{2}} = 1.60736$

$E^{\frac{1}{4}} = 1.60736$



$N_1 = 2.49232$

$A = 1.57871$

$B = 1.98360$

$C = 2.22346$

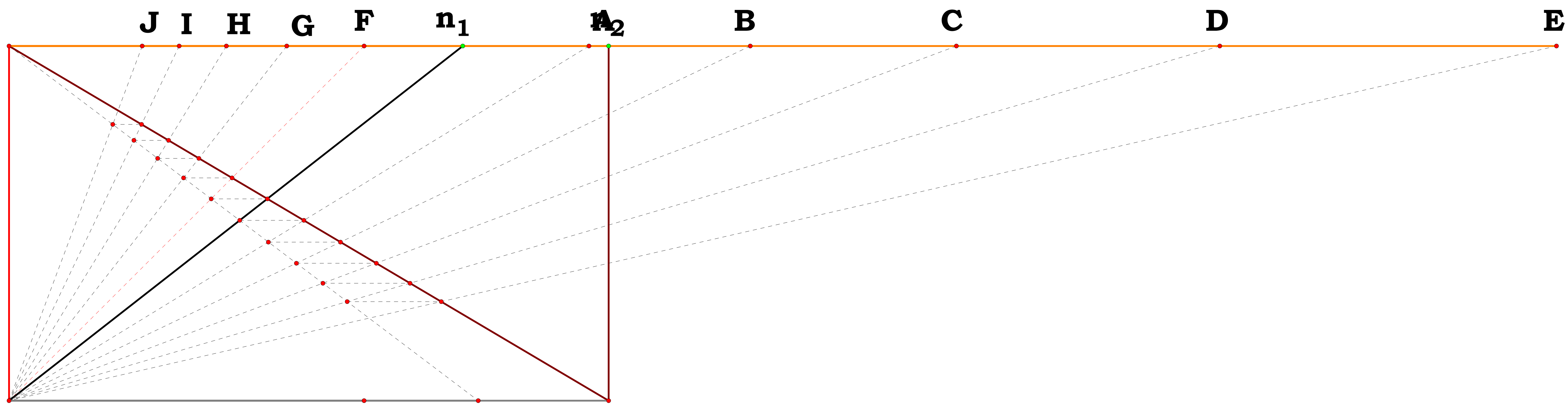
$D = 2.35405$

$N_1^{\frac{1}{2}} - A = 0.00000$

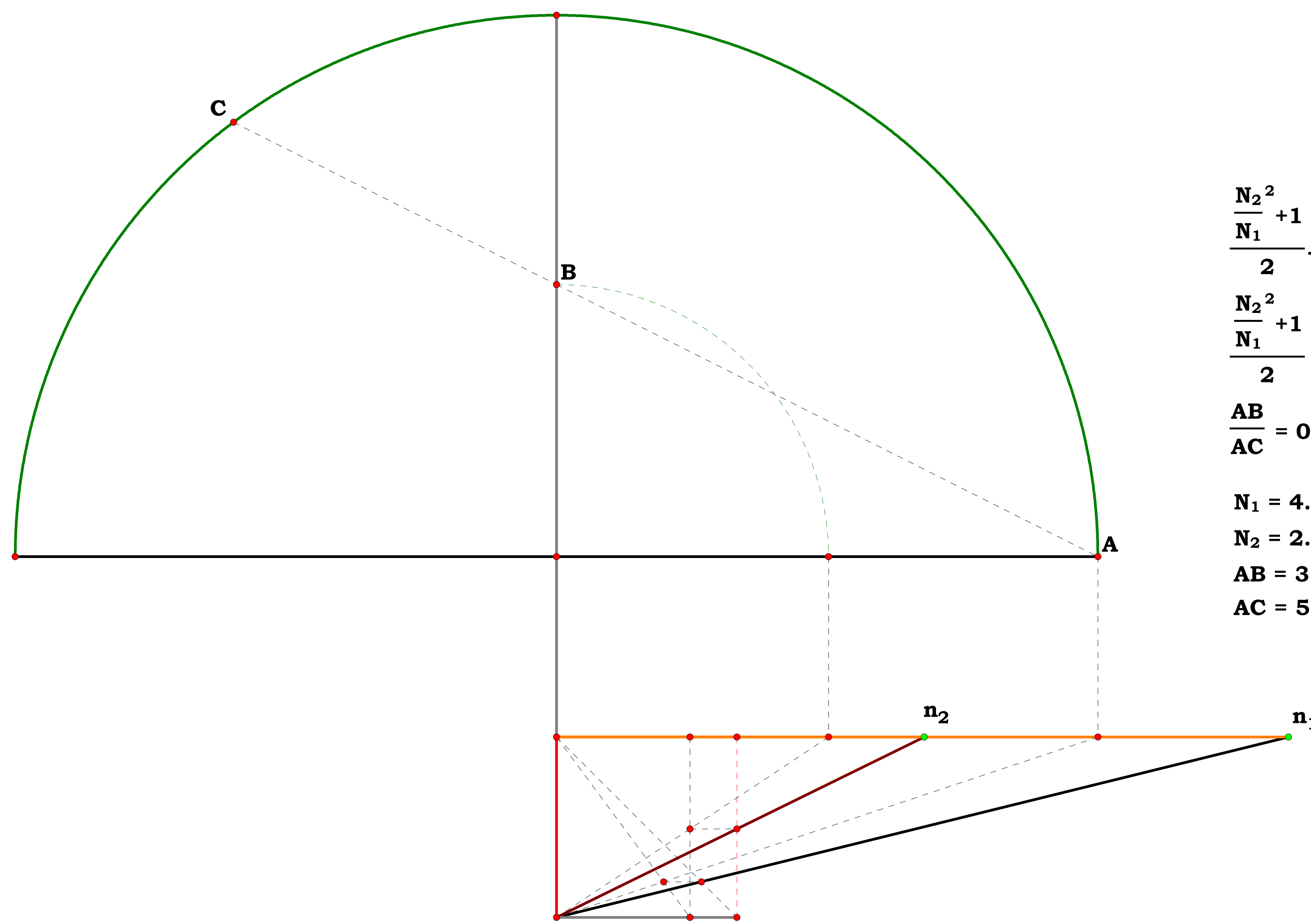
$N_1^{\frac{3}{4}} - B = 0.00000$

$N_1^{\frac{7}{8}} - C = 0.00000$

$N_1^{\frac{15}{16}} - D = 0.00000$



	$A = 1.63353$	$F = 1.00000$	$N_1^2 - A = 0.00000$	$N_1^0 - F = 0.00000$
$N_1 = 1.27809$	$B = 2.08780$	$G = 0.78241$	$N_1^3 - B = 0.00000$	$N_1^{-1} - G = 0.00000$
$N_2 = 1.68896$	$C = 2.66841$	$H = 0.61217$	$N_1^4 - C = 0.00000$	$N_1^{-2} - H = 0.00000$
	$D = 3.41048$	$I = 0.47897$	$N_1^5 - D = 0.00000$	$N_1^{-3} - I = 0.00000$
	$E = 4.35891$	$J = 0.37476$	$N_1^6 - E = 0.00000$	$N_1^{-4} - J = 0.00000$



$$\frac{\frac{N_2{}^2}{N_1}+1}{2}-\frac{AB}{AC} = 0.00000$$

$$\frac{\frac{N_2{}^2}{N_1}+1}{2} = 0.62621$$

$$\frac{AB}{AC} = 0.62621$$

$N_1 = 4.05604$

$N_2 = 2.03783$

$AB = 3.35735$

$AC = 5.36137$

AH = 0.62385

HK = 2.35269

$$\frac{AH}{HK} = 0.26517$$

$$\frac{\sqrt{2}\cdot N_1}{2\cdot(N_1-1)\cdot(N_2-1)} = 0.26517$$

$$\frac{\sqrt{2}\cdot N_1}{2\cdot(N_1-1)\cdot(N_2-1)} - \frac{AH}{HK} = 0.00000$$

Circle
Show Lines
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

$N_1 = 3.00000$

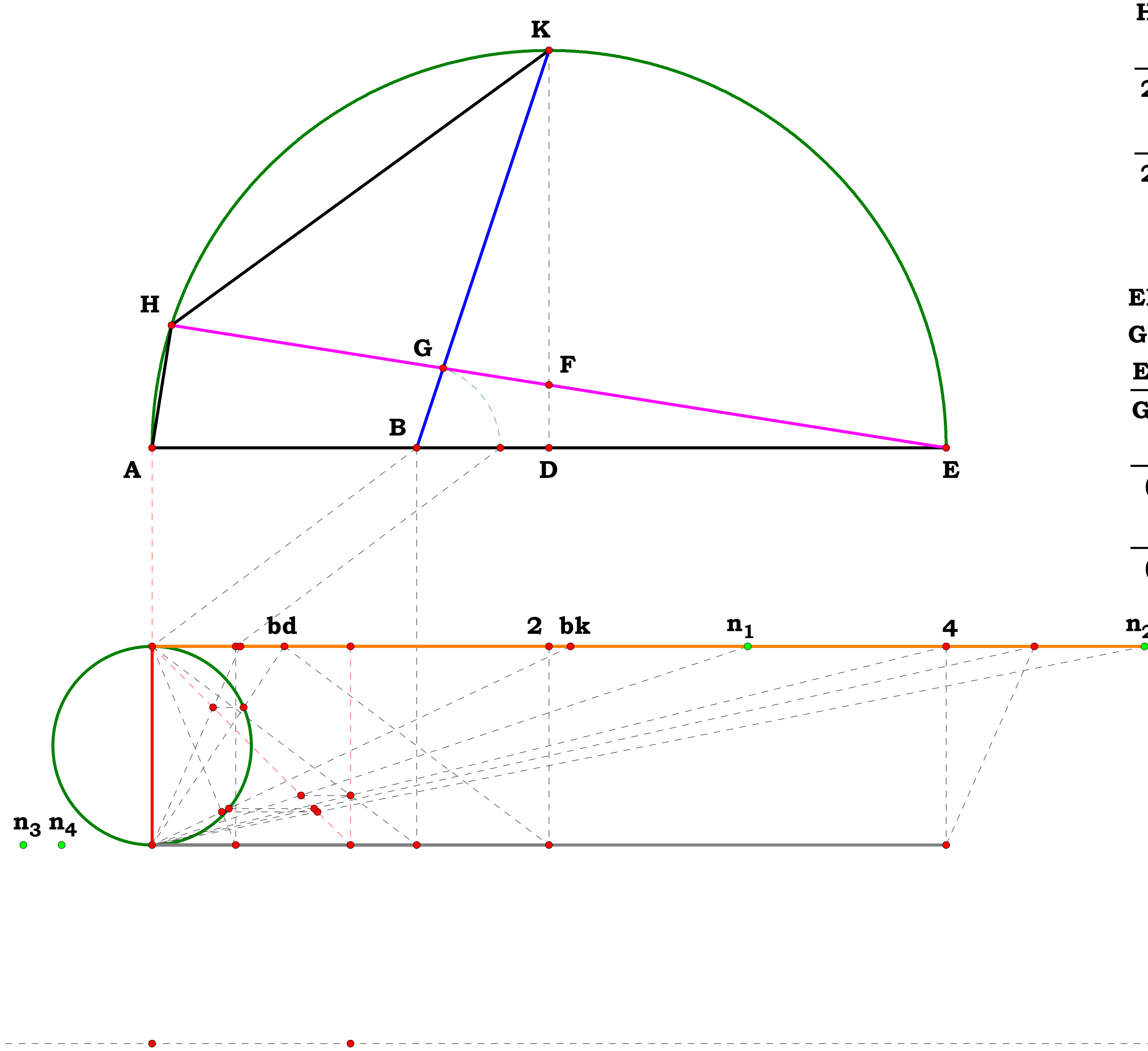
$N_2 = 5.00000$

Points

Circle
Show Lines
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
Points
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

bd = 0.66667

bd^2 = 0.44444



EH = 3.95105

GH = 1.38633

$$\frac{EH}{GH} = 2.85000$$

$$\frac{N_1\cdot N_2\cdot((2\cdot N_1\cdot N_2-2\cdot N_2-N_1)+2)}{(N_2-1)\cdot((((2\cdot N_1\cdot N_2-2\cdot N_2)+N_1^2)-2\cdot N_1)+2)} = 2.85000$$

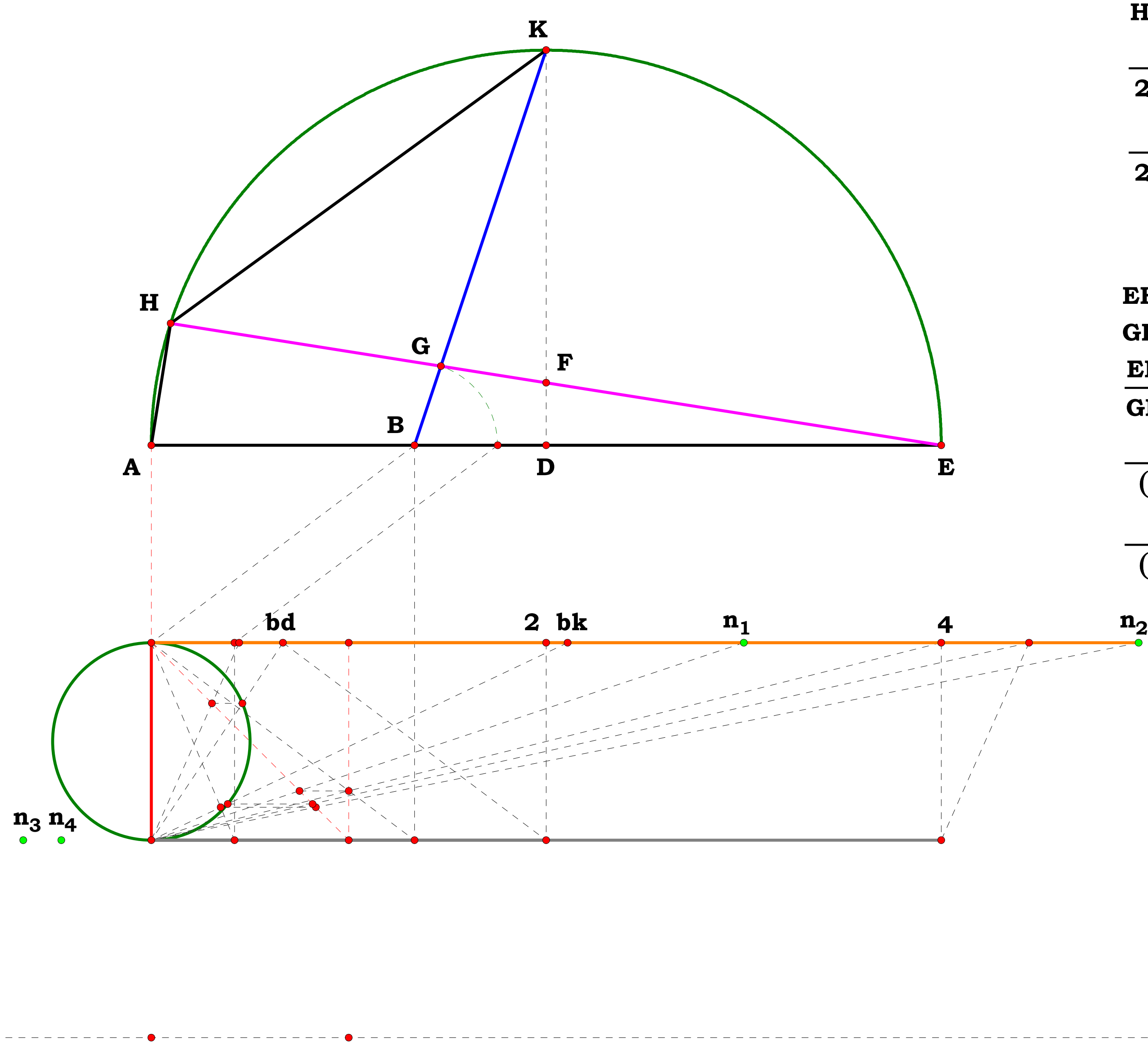
$$\frac{N_1\cdot N_2\cdot((2\cdot N_1\cdot N_2-2\cdot N_2-N_1)+2)}{(N_2-1)\cdot((((2\cdot N_1\cdot N_2-2\cdot N_2)+N_1^2)-2\cdot N_1)+2)} - \frac{EH}{GH} = 0.00000$$

Circle
Show Lines
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

N_1 = 3.00000
N_2 = 5.00000
Points

Circle
Show Lines
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
Points
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

bd = 0.66667
bd^2 = 0.44444



AH = 0.62385

HK = 2.35269

$$\frac{AH}{HK} = 0.26517$$

$$\frac{\sqrt{2}\cdot N_1}{2\cdot(N_1-1)\cdot(N_2-1)} = 0.26517$$

$$\frac{\sqrt{2}\cdot N_1}{2\cdot(N_1-1)\cdot(N_2-1)} - \frac{AH}{HK} = 0.00000$$

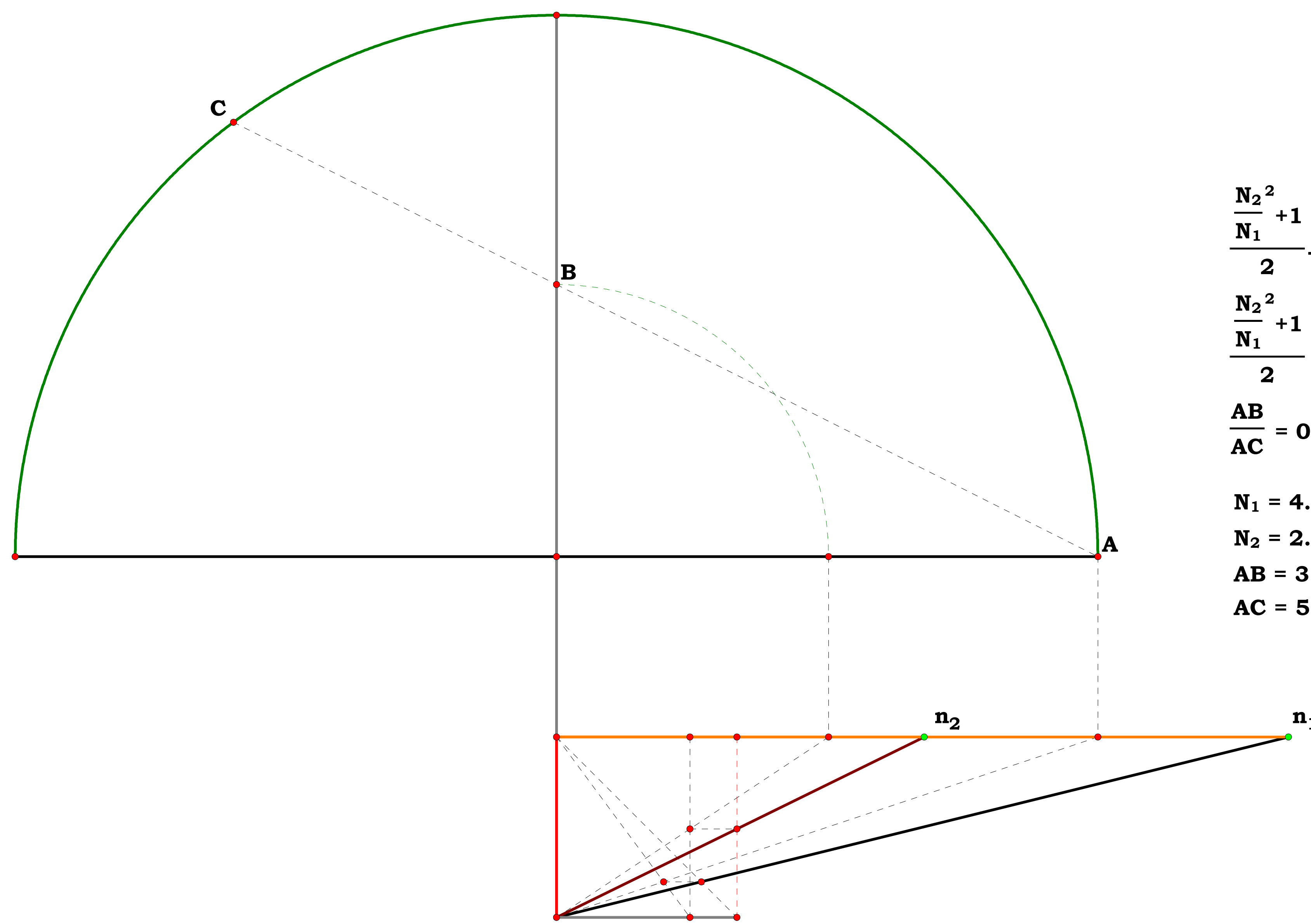
EH = 3.95105

GH = 1.38633

$$\frac{EH}{GH} = 2.85000$$

$$\frac{N_1\cdot N_2\cdot((2\cdot N_1\cdot N_2-2\cdot N_2-N_1)+2)}{(N_2-1)\cdot((((2\cdot N_1\cdot N_2-2\cdot N_2)+N_1^2)-2\cdot N_1)+2)} = 2.85000$$

$$\frac{N_1\cdot N_2\cdot((2\cdot N_1\cdot N_2-2\cdot N_2-N_1)+2)}{(N_2-1)\cdot((((2\cdot N_1\cdot N_2-2\cdot N_2)+N_1^2)-2\cdot N_1)+2)} - \frac{EH}{GH} = 0.00000$$



$$\frac{\frac{N_2{}^2}{N_1}+1}{2}-\frac{AB}{AC} = 0.00000$$

$$\frac{\frac{N_2{}^2}{N_1}+1}{2} = 0.62621$$

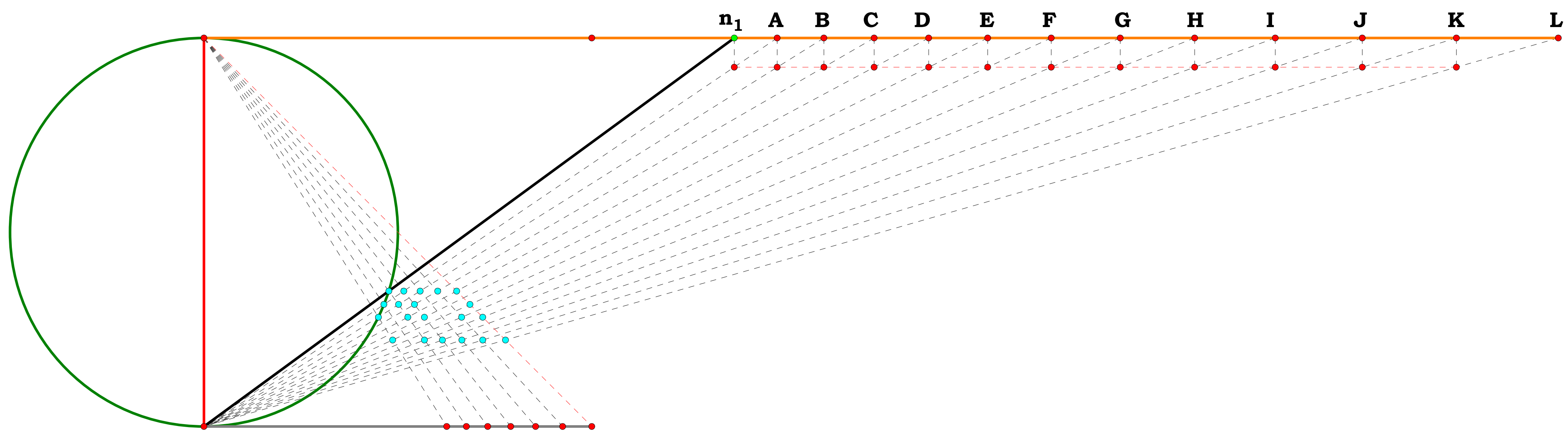
$$\frac{AB}{AC} = 0.62621$$

$N_1 = 4.05604$

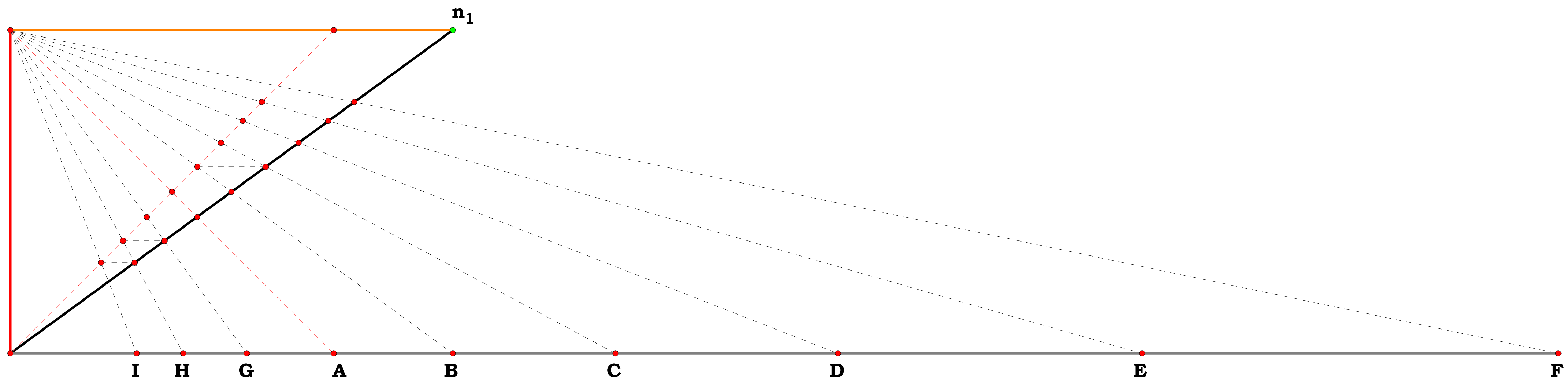
$N_2 = 2.03783$

$AB = 3.35735$

$AC = 5.36137$



N_1 = 1.36693	A = 1.47803	E = 2.02036	I = 2.76169	$N_1^{1.25}$-A = 0.00000	$N_1^{2.25}$-E = 0.00000	$N_1^{3.25}$-I = 0.00000
	B = 1.59816	F = 2.18457	J = 2.98615	$N_1^{1.5}$-B = 0.00000	$N_1^{2.5}$-F = 0.00000	$N_1^{3.5}$-J = 0.00000
	C = 1.72805	G = 2.36212	K = 3.22885	$N_1^{1.75}$-C = 0.00000	$N_1^{2.75}$-G = 0.00000	$N_1^{3.75}$-K = 0.00000
	D = 1.86850	H = 2.55410	L = 3.49128	N_1^{2}-D = 0.00000	N_1^{3}-H = 0.00000	N_1^{4}-L = 0.00000



$N_1 = 1.36763$

A = 1.00000
B = 1.36763
C = 1.87042
D = 2.55805

E = 3.49847
F = 4.78462
G = 0.73119
H = 0.53464
I = 0.39092

N_1^0-A = 0.00000
N_1^1-B = 0.00000
N_1^2-C = 0.00000
N_1^3-D = 0.00000

N_1^4-E = 0.00000
N_1^5-F = 0.00000
N_1^{-1}-G = 0.00000
N_1^{-2}-H = 0.00000
N_1^{-3}-I = 0.00000

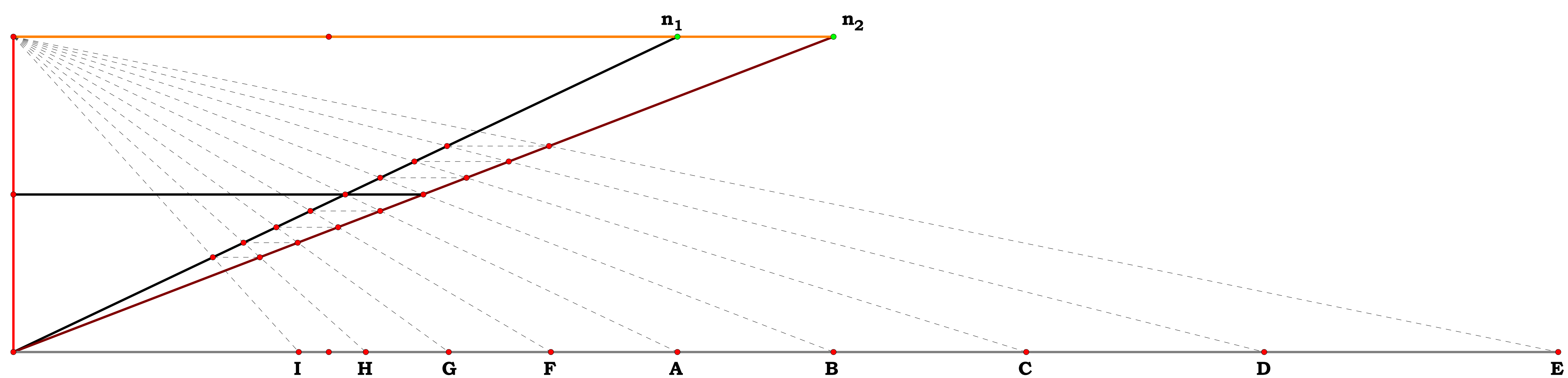
$N_1 = 2.10483$
$N_2 = 2.59960$

$x_A = 2.10483$
$x_B = 2.59960$
$x_C = 3.21068$
$x_D = 3.96539$
$x_E = 4.89752$

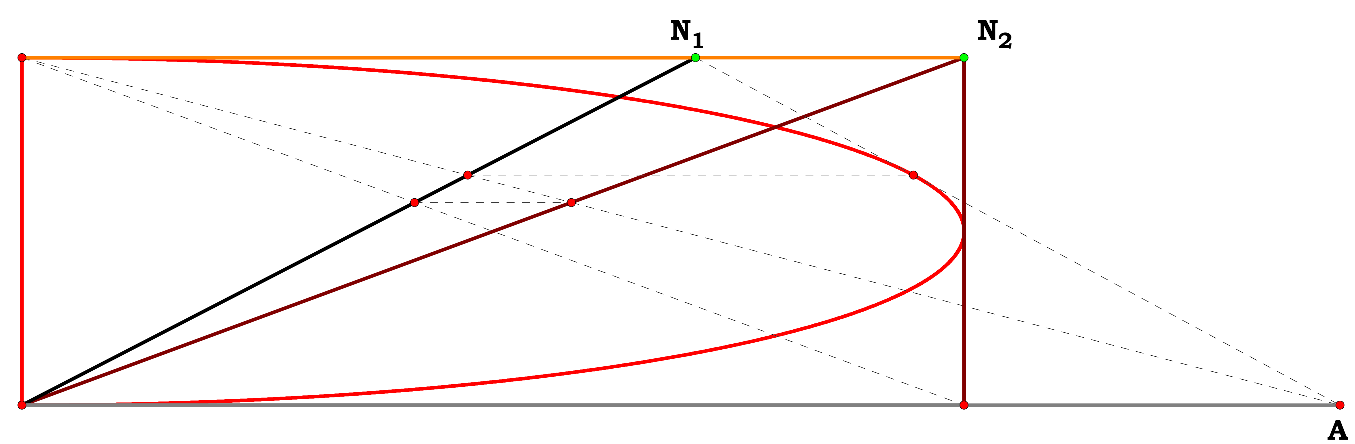
$x_F = 1.70423$
$x_G = 1.37987$
$x_H = 1.11724$
$x_I = 0.90460$

$$\frac{N_2^{0}}{N_1^{-1}} = 2.10483$$
$$\frac{N_2^{1}}{N_1^{0}} = 2.59960$$
$$\frac{N_2^{2}}{N_1^{1}} = 3.21068$$
$$\frac{N_2^{3}}{N_1^{2}} = 3.96539$$
$$\frac{N_2^{4}}{N_1^{3}} = 4.89752$$

$$\frac{N_2^{-1}}{N_1^{-2}} = 1.70423$$
$$\frac{N_2^{-2}}{N_1^{-3}} = 1.37987$$
$$\frac{N_2^{-3}}{N_1^{-4}} = 1.11724$$
$$\frac{N_2^{-4}}{N_1^{-5}} = 0.90460$$



From any point N_1 draw the tangent to the ellipse N_2. Or given the square N_2 divide it by N_1.



$N_1 = 1.93770$ $A = 3.79224$

$N_2 = 2.71076$ $\frac{N_2^2}{N_1} - A = 0.00000$

A^2-B = 0.00000
(A·B)-C = 0.00000
B^2-D = 0.00000
(B·C)-E = 0.00000

C^2-F = 0.00000
(C·D)-G = 0.00000
D^2-H = 0.00000
(D·E)-I = 0.00000

E^2-J = 0.00000
(E·F)-K = 0.00000
F^2-L = 0.00000
(F·G)-M = 0.00000

$\frac{N_1 \cdot N_2+1}{N_1 \cdot N_2}^{1}$ -A = 0.00000

$\frac{(N_1 \cdot N_2+1)^{2}}{(N_1 \cdot N_2)}$ -B = 0.00000

$\frac{(N_1 \cdot N_2+1)^{3}}{(N_1 \cdot N_2)}$ -C = 0.00000

$\frac{(N_1 \cdot N_2+1)^{4}}{(N_1 \cdot N_2)}$ -D = 0.00000

$\frac{(N_1 \cdot N_2+1)^{5}}{(N_1 \cdot N_2)}$ -E = 0.00000

$\frac{(N_1 \cdot N_2+1)^{6}}{(N_1 \cdot N_2)}$ -F = 0.00000

$\frac{(N_1 \cdot N_2+1)^{7}}{(N_1 \cdot N_2)}$ -G = 0.00000

$\frac{(N_1 \cdot N_2+1)^{8}}{(N_1 \cdot N_2)}$ -H = 0.00000

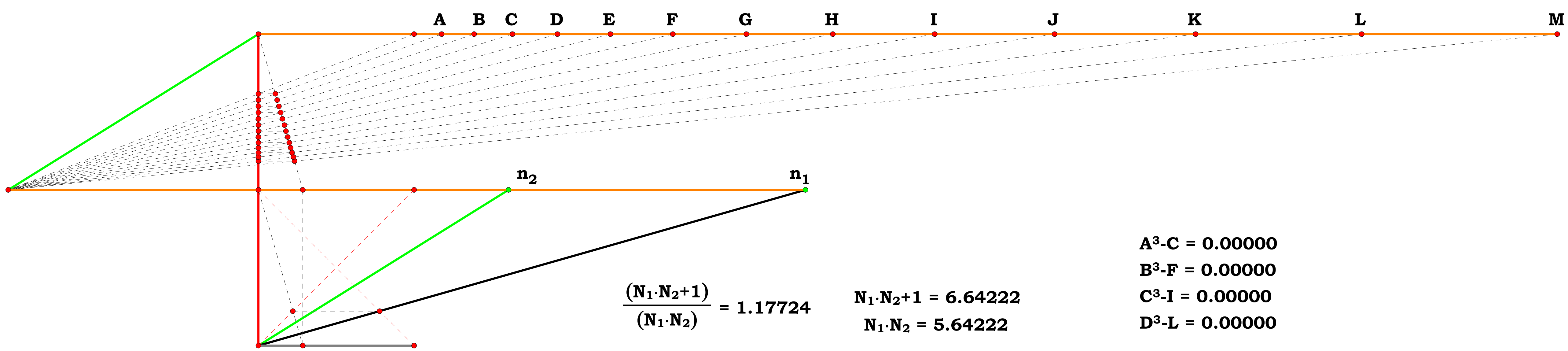
$\frac{(N_1 \cdot N_2+1)^{9}}{(N_1 \cdot N_2)}$ -I = 0.00000

$\frac{(N_1 \cdot N_2+1)^{10}}{(N_1 \cdot N_2)}$ -J = 0.00000

$\frac{(N_1 \cdot N_2+1)^{11}}{(N_1 \cdot N_2)}$ -K = 0.00000

$\frac{(N_1 \cdot N_2+1)^{12}}{(N_1 \cdot N_2)}$ -L = 0.00000

$\frac{(N_1 \cdot N_2+1)^{13}}{(N_1 \cdot N_2)}$ -M = 0.00000



$\frac{(N_1 \cdot N_2+1)}{(N_1 \cdot N_2)}$ = 1.17724

$N_1 \cdot N_2$+1 = 6.64222
$N_1 \cdot N_2$ = 5.64222

A^3-C = 0.00000
B^3-F = 0.00000
C^3-I = 0.00000
D^3-L = 0.00000

N_1 = 3.51340
N_2 = 1.60591

A = 1.17724
B = 1.38588
C = 1.63151
D = 1.92067
E = 2.26108

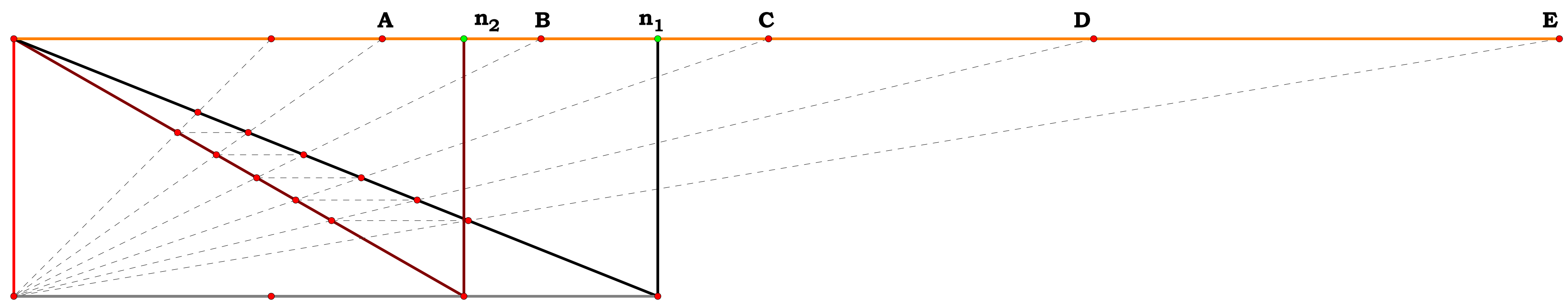
F = 2.66183
G = 3.13360
H = 3.68898
I = 4.34280

J = 5.11249
K = 6.01861
L = 7.08532
M = 8.34108

A^2 = 1.38588
A·B = 1.63151
B^2 = 1.92067
B·C = 2.26108

C^2 = 2.66183
C·D = 3.13360
D^2 = 3.68898
D·E = 4.34280

E^2 = 5.11249
E·F = 6.01861
F^2 = 7.08532
F·G = 8.34108



A = 1.43109

B = 2.04801

C = 2.93088

D = 4.19435

E = 6.00248

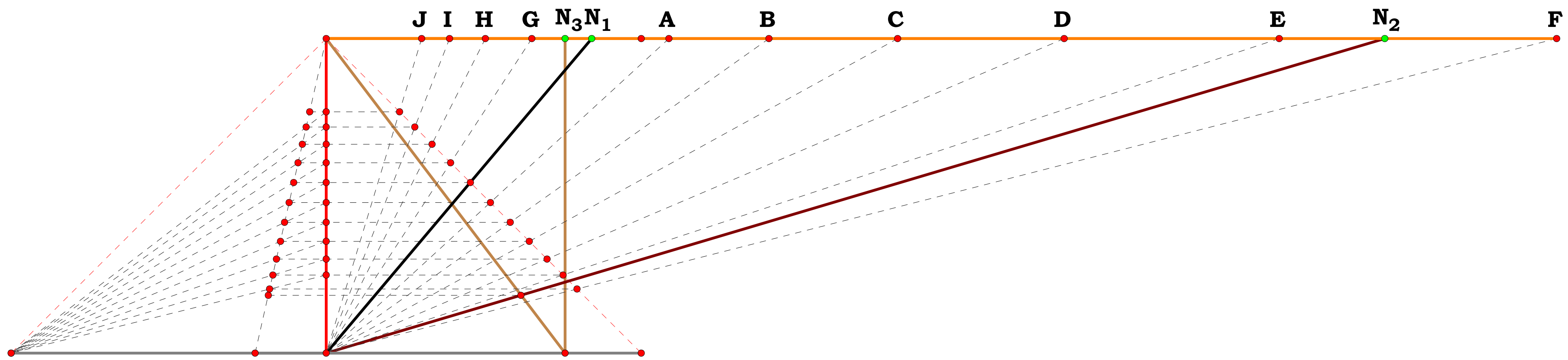
$\frac{N_1}{N_2}$-A = 0.00000

$\frac{N_1}{N_2}^{2}$-B = 0.00000

$\frac{N_1}{N_2}^{3}$-C = 0.00000

$\frac{N_1}{N_2}^{4}$-D = 0.00000

$\frac{N_1}{N_2}^{5}$-E = 0.00000



$$\frac{N_1^{\frac{1}{4}} \cdot N_2}{N_2-N_3}^{4} - D = 0.00000$$

$$\frac{N_1 \cdot N_2^{4}}{(N_2-N_3)^{4}} - D = 0.00000$$

$$\frac{N_2}{N_2-N_3} = 1.29123$$

$N_1 = 0.84255$

$N_2 = 3.35986$

$N_3 = 0.75780$

A = 1.08792

B = 1.40476

C = 1.81388

D = 2.34214

E = 3.02425

F = 3.90501

G = 0.65251

H = 0.50534

I = 0.39136

J = 0.30309

$$\frac{N_2}{N_2-N_3}^{1} \cdot N_1 - A = 0.00000$$

$$\frac{N_2}{N_2-N_3}^{2} \cdot N_1 - B = 0.00000$$

$$\frac{N_2}{N_2-N_3}^{3} \cdot N_1 - C = 0.00000$$

$$\frac{N_2}{N_2-N_3}^{4} \cdot N_1 - D = 0.00000$$

$$\frac{N_2}{N_2-N_3}^{5} \cdot N_1 - E = 0.00000$$

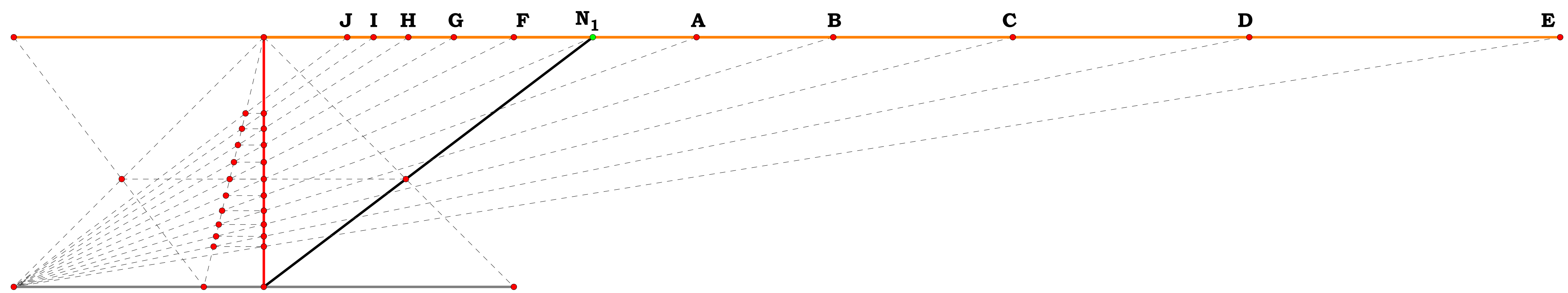
$$\frac{N_2}{N_2-N_3}^{6} \cdot N_1 - F = 0.00000$$

$$\frac{N_2}{N_2-N_3}^{-1} \cdot N_1 - G = 0.00000$$

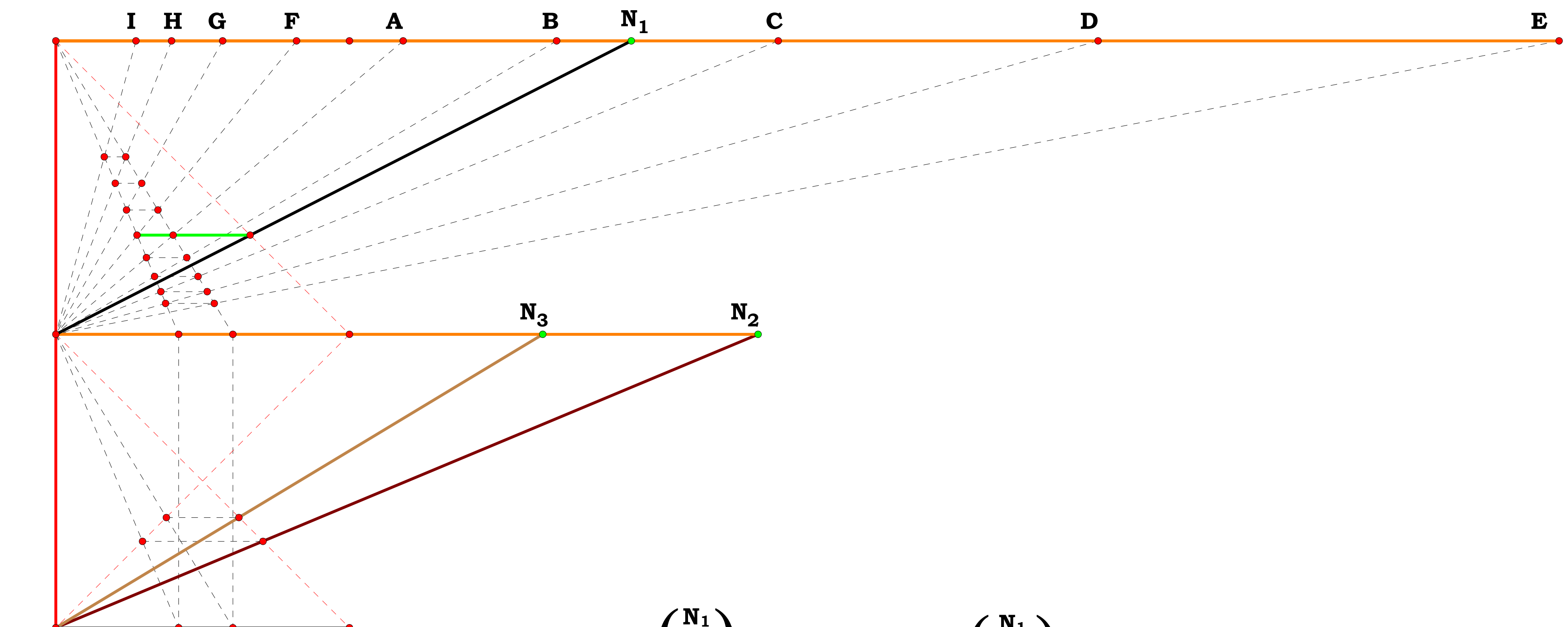
$$\frac{N_2}{N_2-N_3}^{-2} \cdot N_1 - H = 0.00000$$

$$\frac{N_2}{N_2-N_3}^{-3} \cdot N_1 - I = 0.00000$$

$$\frac{N_2}{N_2-N_3}^{-4} \cdot N_1 - J = 0.00000$$



$N_1 = 1.31554$	$A = 1.73065$	$F = 1.00000$	$N_1^2 - A = 0.00000$	$N_1^0 - F = 0.00000$
	$B = 2.27675$	$G = 0.76014$	$N_1^3 - B = 0.00000$	$N_1^{-1} - G = 0.00000$
	$C = 2.99516$	$H = 0.57782$	$N_1^4 - C = 0.00000$	$N_1^{-2} - H = 0.00000$
	$D = 3.94026$	$I = 0.43922$	$N_1^5 - D = 0.00000$	$N_1^{-3} - I = 0.00000$
	$E = 5.18358$	$J = 0.33387$	$N_1^6 - E = 0.00000$	$N_1^{-4} - J = 0.00000$



$N_1 = 1.95987$

$N_2 = 2.39124$

$N_3 = 1.65771$

$A = 1.18227$

$B = 1.70541$

$C = 2.46005$

$D = 3.54859$

$E = 5.11881$

$F = 0.81960$

$G = 0.56819$

$H = 0.39389$

$I = 0.27306$

$$\left(\frac{N_1}{N_3}\right)\cdot N_2^{0}-A = 0.00000$$

$$\left(\frac{N_1}{N_3^{2}}\right)\cdot N_2-B = 0.00000$$

$$\left(\frac{N_1}{N_3^{3}}\right)\cdot N_2^{2}-C = 0.00000$$

$$\left(\frac{N_1}{N_3^{4}}\right)\cdot N_2^{3}-D = 0.00000$$

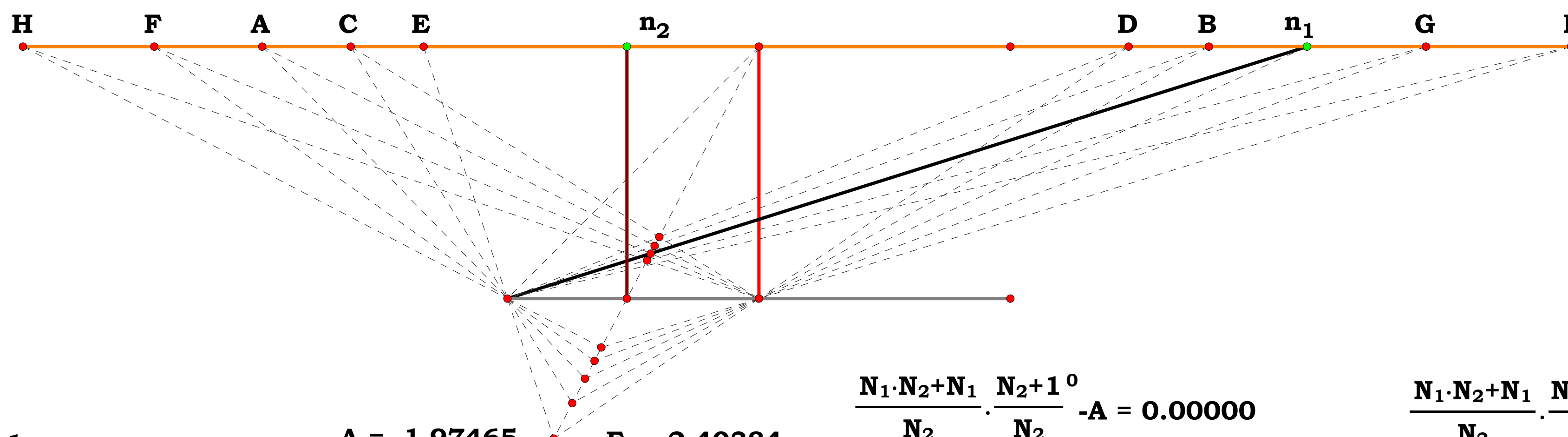
$$\left(\frac{N_1}{N_3^{5}}\right)\cdot N_2^{4}-E = 0.00000$$

$$\left(\frac{N_1}{N_3^{0}}\right)\cdot N_2^{-1}-F = 0.00000$$

$$\left(\frac{N_1}{N_3^{-1}}\right)\cdot N_2^{-2}-G = 0.00000$$

$$\left(\frac{N_1}{N_3^{-2}}\right)\cdot N_2^{-3}-H = 0.00000$$

$$\left(\frac{N_1}{N_3^{-3}}\right)\cdot N_2^{-4}-I = 0.00000$$



$$\frac{N_2+1}{N_2} = -0.90634$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} = -1.97465$$

$N_1 = 2.17870$

$N_2 = -0.52456$

A = -1.97465

B = 1.78970

C = -1.62208

D = 1.47016

E = -1.33247

F = -2.40384

G = 2.65225

H = -2.92632

I = 3.22872

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{0} - A = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{1} - B = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{2} - C = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{3} - D = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{4} - E = 0.00000$$

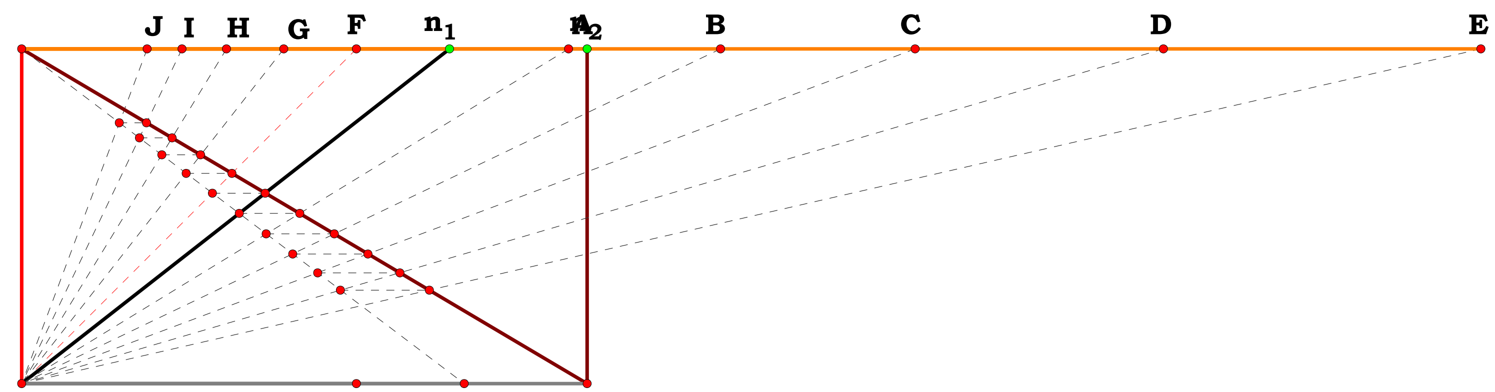
$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{-1} - N_1 = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{-2} - F = 0.00000$$

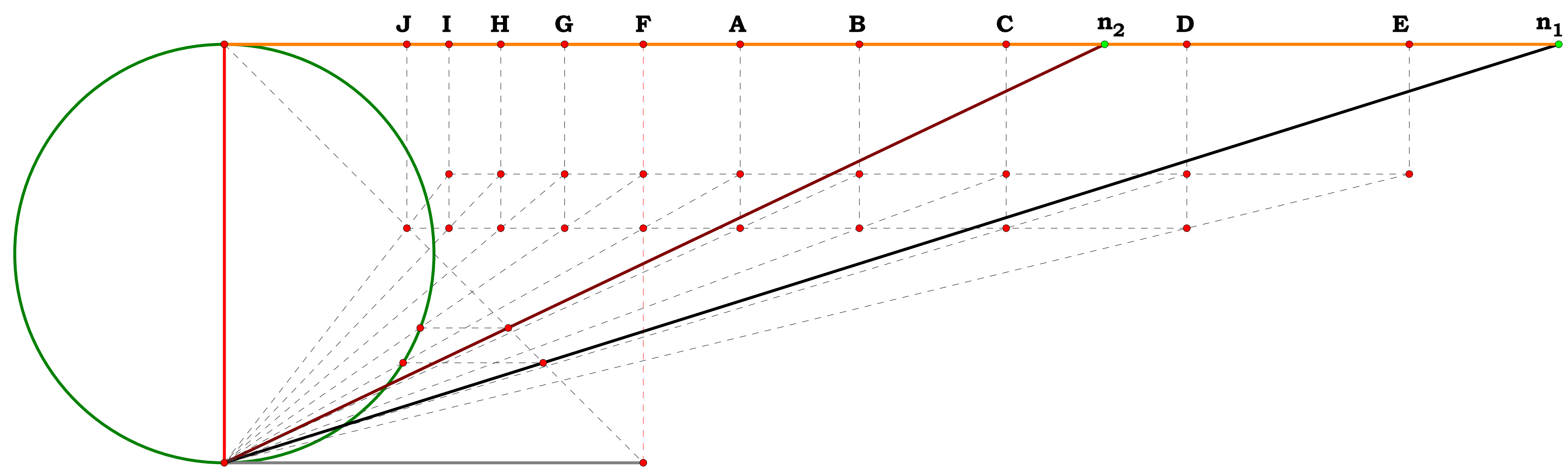
$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{-3} - G = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{-4} - H = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{-5} - I = 0.00000$$



	A = 1.63353	F = 1.00000	N_1^2-A = 0.00000	N_1^0-F = 0.00000
N_1 = 1.27809	B = 2.08780	G = 0.78241	N_1^3-B = 0.00000	N_1^{-1}-G = 0.00000
N_2 = 1.68896	C = 2.66841	H = 0.61217	N_1^4-C = 0.00000	N_1^{-2}-H = 0.00000
	D = 3.41048	I = 0.47897	N_1^5-D = 0.00000	N_1^{-3}-I = 0.00000
	E = 4.35891	J = 0.37476	N_1^6-E = 0.00000	N_1^{-4}-J = 0.00000



$$\frac{\sqrt{N_1}}{\sqrt{N_2}} = 1.23112$$

$N_1 = 3.18458$
$N_2 = 2.10112$

A = 1.23112
B = 1.51566
C = 1.86597
D = 2.29723
E = 2.82817

F = 1.00000
G = 0.81227
H = 0.65978
I = 0.53592
J = 0.43531

$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{1} - A = 0.00000$$

$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{2} - B = 0.00000$$

$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{3} - C = 0.00000$$

$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{4} - D = 0.00000$$

$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{5} - E = 0.00000$$

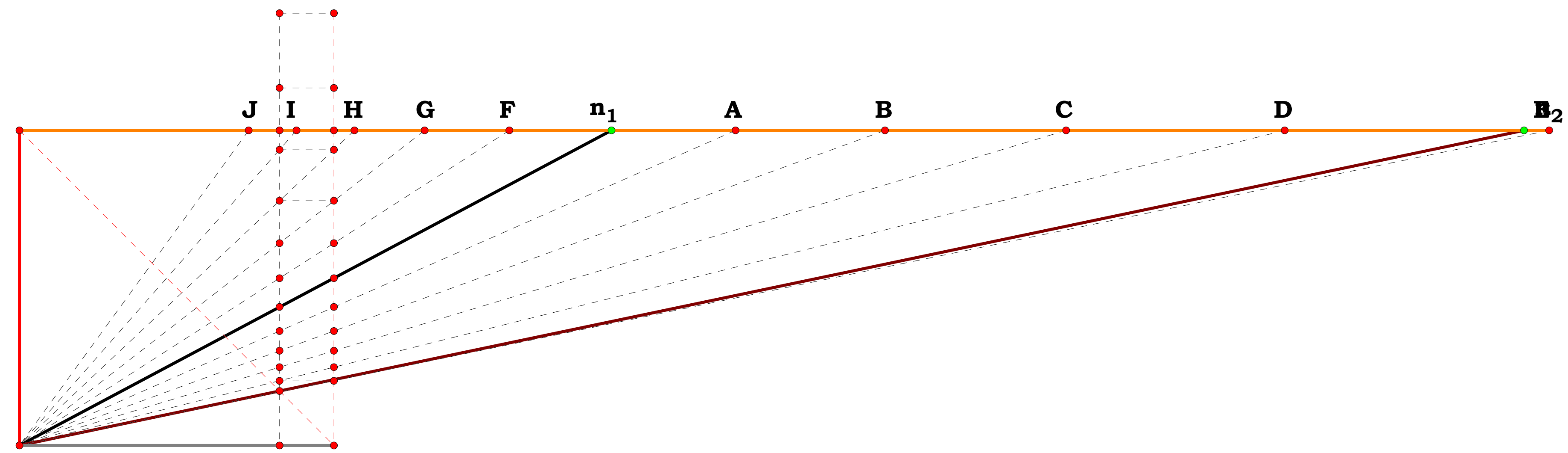
$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{0} - F = 0.00000$$

$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{-1} - G = 0.00000$$

$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{-2} - H = 0.00000$$

$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{-3} - I = 0.00000$$

$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{-4} - J = 0.00000$$



$$\frac{N_1 \cdot N_2 + N_1}{N_2} = 2.27629$$

$$\frac{N_2 + 1}{N_2} = 1.20903$$

$N_1 = 1.88273$

$N_2 = 4.78390$

A = 2.27629

B = 2.75211

C = 3.32740

D = 4.02294

E = 4.86387

F = 1.55722

G = 1.28799

H = 1.06530

I = 0.88112

J = 0.72878

$$\frac{N_1 \cdot N_2 + N_1}{N_2} \cdot \frac{N_2 + 1}{N_2}^{0} - A = 0.00000$$

$$\frac{N_1 \cdot N_2 + N_1}{N_2} \cdot \frac{N_2 + 1}{N_2}^{1} - B = 0.00000$$

$$\frac{N_1 \cdot N_2 + N_1}{N_2} \cdot \frac{N_2 + 1}{N_2}^{2} - C = 0.00000$$

$$\frac{N_1 \cdot N_2 + N_1}{N_2} \cdot \frac{N_2 + 1}{N_2}^{3} - D = 0.00000$$

$$\frac{N_1 \cdot N_2 + N_1}{N_2} \cdot \frac{N_2 + 1}{N_2}^{4} - E = 0.00000$$

$$\frac{N_1 \cdot N_2 + N_1}{N_2} \cdot \frac{N_2 + 1}{N_2}^{-1} - N_1 = 0.00000$$

$$\frac{N_1 \cdot N_2 + N_1}{N_2} \cdot \frac{N_2 + 1}{N_2}^{-2} - F = 0.00000$$

$$\frac{N_1 \cdot N_2 + N_1}{N_2} \cdot \frac{N_2 + 1}{N_2}^{-3} - G = 0.00000$$

$$\frac{N_1 \cdot N_2 + N_1}{N_2} \cdot \frac{N_2 + 1}{N_2}^{-4} - H = 0.00000$$

$$\frac{N_1 \cdot N_2 + N_1}{N_2} \cdot \frac{N_2 + 1}{N_2}^{-5} - I = 0.00000$$

$$\frac{N_1 \cdot N_2 + N_1}{N_2} \cdot \frac{N_2 + 1}{N_2}^{-6} - J = 0.00000$$

$$\frac{N_2 \cdot (N_1+1)}{N_1 \cdot (N_2+1)} = 1.10710$$

A = 1.10710
B = 1.22567
C = 1.35694
D = 1.50227
E = 1.66316
F = 0.90326
G = 0.81588
H = 0.73695
I = 0.66566

$$\frac{N_2 \cdot (N_1+1)}{N_1 \cdot (N_2+1)}^{1} -A = 0.00000$$

$$\frac{N_2 \cdot (N_1+1)}{N_1 \cdot (N_2+1)}^{2} -B = 0.00000$$

$$\frac{N_2 \cdot (N_1+1)}{N_1 \cdot (N_2+1)}^{3} -C = 0.00000$$

$$\frac{N_2 \cdot (N_1+1)}{N_1 \cdot (N_2+1)}^{4} -D = 0.00000$$

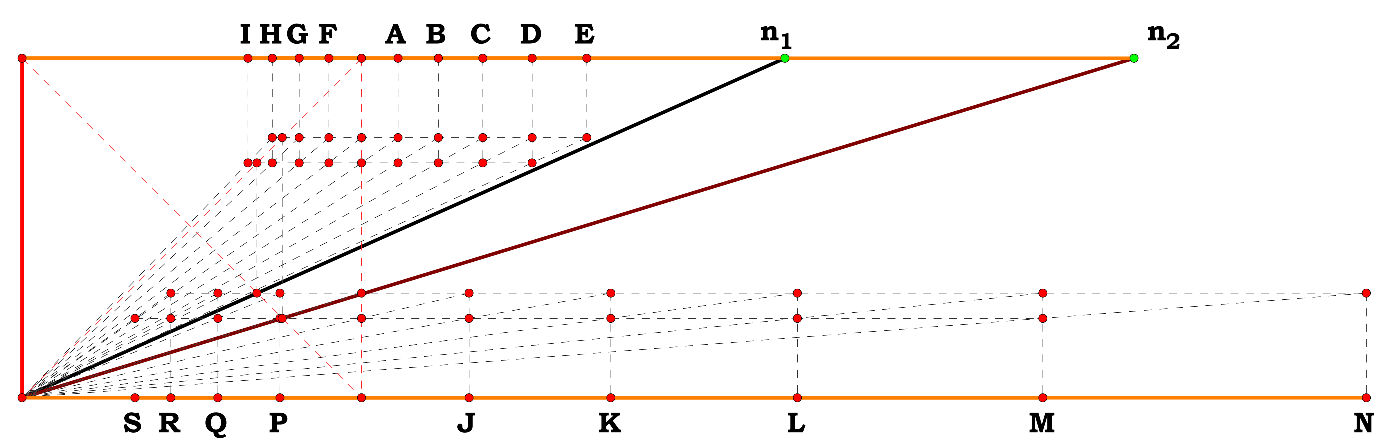
$$\frac{N_2 \cdot (N_1+1)}{N_1 \cdot (N_2+1)}^{5} -E = 0.00000$$

$$\frac{N_2 \cdot (N_1+1)}{N_1 \cdot (N_2+1)}^{-1} -F = 0.00000$$

$$\frac{N_2 \cdot (N_1+1)}{N_1 \cdot (N_2+1)}^{-2} -G = 0.00000$$

$$\frac{N_2 \cdot (N_1+1)}{N_1 \cdot (N_2+1)}^{-3} -H = 0.00000$$

$$\frac{N_2 \cdot (N_1+1)}{N_1 \cdot (N_2+1)}^{-4} -I = 0.00000$$



$$\frac{N_2+1}{N_1+1} = 1.31677$$

N_1 = 2.24615
N_2 = 3.27442

J = 1.31677
K = 1.73387
L = 2.28310
M = 3.00631
N = 3.95861

P = 0.75944
Q = 0.57674
R = 0.43800
S = 0.33263

$$\frac{N_2+1}{N_1+1}^{1} -J = 0.00000$$

$$\frac{N_2+1}{N_1+1}^{2} -K = 0.00000$$

$$\frac{N_2+1}{N_1+1}^{3} -L = 0.00000$$

$$\frac{N_2+1}{N_1+1}^{4} -M = 0.00000$$

$$\frac{N_2+1}{N_1+1}^{5} -N = 0.00000$$

$$\frac{N_2+1}{N_1+1}^{-1} -P = 0.00000$$

$$\frac{N_2+1}{N_1+1}^{-2} -Q = 0.00000$$

$$\frac{N_2+1}{N_1+1}^{-3} -R = 0.00000$$

$$\frac{N_2+1}{N_1+1}^{-4} -S = 0.00000$$

$$\frac{N_2^2 \cdot (N_1+1)}{N_1 \cdot (N_2+1)^2} = 0.83725$$

$$\frac{N_2 \cdot (N_1+1)}{N_1 \cdot N_2+N_1} = 1.12397$$

A = 0.83725
B = 0.94105
C = 1.05771
D = 1.18884
E = 1.33622

F = 0.74490
G = 0.66274
H = 0.58964
I = 0.52461

$$\frac{N_2^2 \cdot (N_1+1)}{N_1 \cdot (N_2+1)^2} \cdot \frac{N_2 \cdot (N_1+1)}{N_1 \cdot N_2+N_1}^{0} - A = 0.00000$$

$$\frac{N_2^2 \cdot (N_1+1)}{N_1 \cdot (N_2+1)^2} \cdot \frac{N_2 \cdot (N_1+1)}{N_1 \cdot N_2+N_1}^{1} - B = 0.00000$$

$$\frac{N_2^2 \cdot (N_1+1)}{N_1 \cdot (N_2+1)^2} \cdot \frac{N_2 \cdot (N_1+1)}{N_1 \cdot N_2+N_1}^{2} - C = 0.00000$$

$$\frac{N_2^2 \cdot (N_1+1)}{N_1 \cdot (N_2+1)^2} \cdot \frac{N_2 \cdot (N_1+1)}{N_1 \cdot N_2+N_1}^{3} - D = 0.00000$$

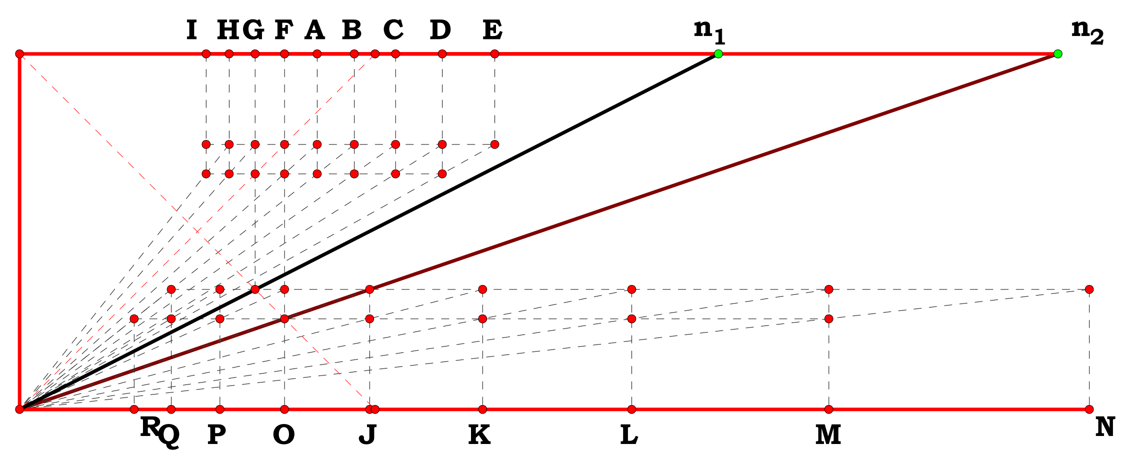
$$\frac{N_2^2 \cdot (N_1+1)}{N_1 \cdot (N_2+1)^2} \cdot \frac{N_2 \cdot (N_1+1)}{N_1 \cdot N_2+N_1}^{4} - E = 0.00000$$

$$\frac{N_2^2 \cdot (N_1+1)}{N_1 \cdot (N_2+1)^2} \cdot \frac{N_2 \cdot (N_1+1)}{N_1 \cdot N_2+N_1}^{-1} - F = 0.00000$$

$$\frac{N_2^2 \cdot (N_1+1)}{N_1 \cdot (N_2+1)^2} \cdot \frac{N_2 \cdot (N_1+1)}{N_1 \cdot N_2+N_1}^{-2} - G = 0.00000$$

$$\frac{N_2^2 \cdot (N_1+1)}{N_1 \cdot (N_2+1)^2} \cdot \frac{N_2 \cdot (N_1+1)}{N_1 \cdot N_2+N_1}^{-3} - H = 0.00000$$

$$\frac{N_2^2 \cdot (N_1+1)}{N_1 \cdot (N_2+1)^2} \cdot \frac{N_2 \cdot (N_1+1)}{N_1 \cdot N_2+N_1}^{-4} - I = 0.00000$$



$$\frac{N_2}{N_1+1} = 0.98482$$

$$\frac{N_2+1}{N_1+1} = 1.32208$$

N_1 = 1.96510
N_2 = 2.92011

J = 0.98482
K = 1.30202
L = 1.72138
M = 2.27580
N = 3.00879

O = 0.74490
P = 0.56343
Q = 0.42617
R = 0.32235

$$\frac{N_2}{N_1+1} \cdot \frac{N_2+1}{N_1+1}^{0} - J = 0.00000$$

$$\frac{N_2}{N_1+1} \cdot \frac{N_2+1}{N_1+1}^{1} - K = 0.00000$$

$$\frac{N_2}{N_1+1} \cdot \frac{N_2+1}{N_1+1}^{2} - L = 0.00000$$

$$\frac{N_2}{N_1+1} \cdot \frac{N_2+1}{N_1+1}^{3} - M = 0.00000$$

$$\frac{N_2}{N_1+1} \cdot \frac{N_2+1}{N_1+1}^{4} - N = 0.00000$$

$$\frac{N_2}{N_1+1} \cdot \frac{N_2+1}{N_1+1}^{-1} - O = 0.00000$$

$$\frac{N_2}{N_1+1} \cdot \frac{N_2+1}{N_1+1}^{-2} - P = 0.00000$$

$$\frac{N_2}{N_1+1} \cdot \frac{N_2+1}{N_1+1}^{-3} - Q = 0.00000$$

$$\frac{N_2}{N_1+1} \cdot \frac{N_2+1}{N_1+1}^{-4} - R = 0.00000$$

$B = 1.31080$
$C = 1.71820$
$D = 2.25222$
$E = 2.95221$
$F = 3.86977$
$G = 5.07250$

$$\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)} = 1.31080 \qquad \frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}^{1} - B = 0.00000$$

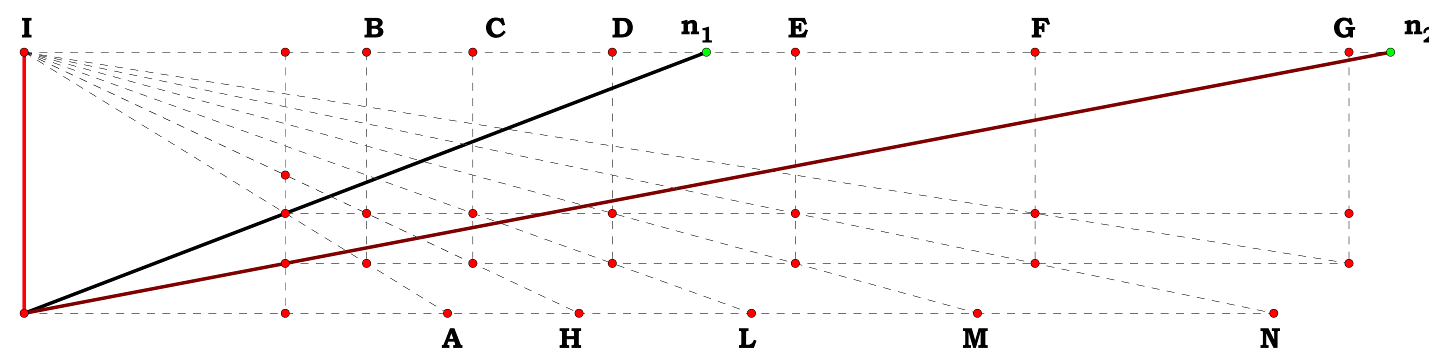
$$\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}^{2} = 1.71820 \qquad \frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}^{2} - C = 0.00000$$

$$\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}^{3} = 2.25222 \qquad \frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}^{3} - D = 0.00000$$

$$\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}^{4} = 2.95221 \qquad \frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}^{4} - E = 0.00000$$

$$\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}^{5} = 3.86977 \qquad \frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}^{5} - F = 0.00000$$

$$\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}^{6} = 5.07250 \qquad \frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}^{6} - G = 0.00000$$



$$\frac{N_1}{N_1-1} - A = 0.00000$$

$$\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2} = 2.12423$$

$N_1 = 2.61146$
$N_2 = 5.23175$

$A = 1.62056$
$H = 2.12423$
$L = 2.78444$
$M = 3.64985$
$N = 4.78423$

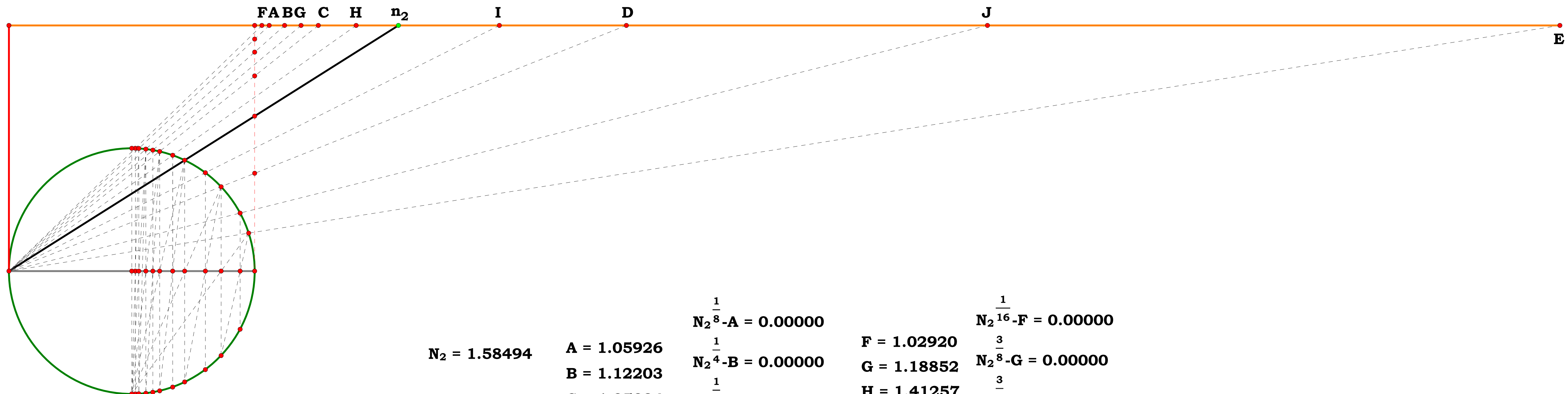
$$\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}^{-1} = 1.62056 \qquad \left(\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}^{-1}\right) - A = 0.00000$$

$$\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}^{0} = 2.12423 \qquad \left(\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}^{0}\right) - H = 0.00000$$

$$\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}^{1} = 2.78444 \qquad \left(\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}^{1}\right) - L = 0.00000$$

$$\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}^{2} = 3.64985 \qquad \left(\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}^{2}\right) - M = 0.00000$$

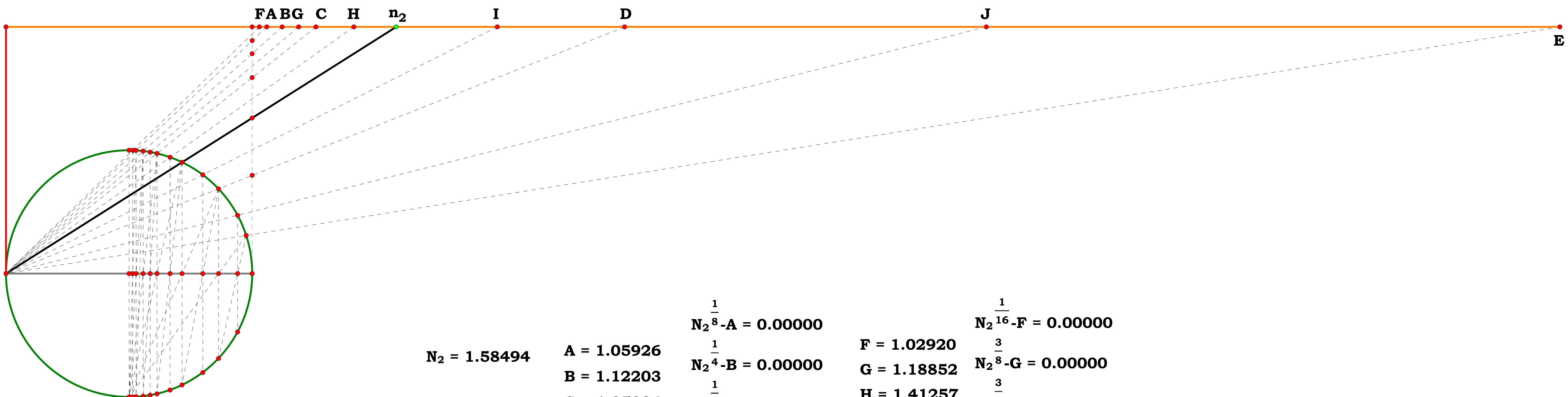
$$\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}^{3} = 4.78423 \qquad \left(\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}^{3}\right) - N = 0.00000$$



$N_2 = 1.58494$

A = 1.05926	$N_2^{\frac{1}{8}}$-A = 0.00000
B = 1.12203	$N_2^{\frac{1}{4}}$-B = 0.00000
C = 1.25894	$N_2^{\frac{1}{2}}$-C = 0.00000
D = 2.51204	N_2^{2}-D = 0.00000
E = 6.31034	N_2^{4}-E = 0.00000

F = 1.02920	$N_2^{\frac{1}{16}}$-F = 0.00000
G = 1.18852	$N_2^{\frac{3}{8}}$-G = 0.00000
H = 1.41257	$N_2^{\frac{3}{4}}$-H = 0.00000
I = 1.99535	$N_2^{\frac{3}{2}}$-I = 0.00000
J = 3.98144	N_2^{3}-J = 0.00000



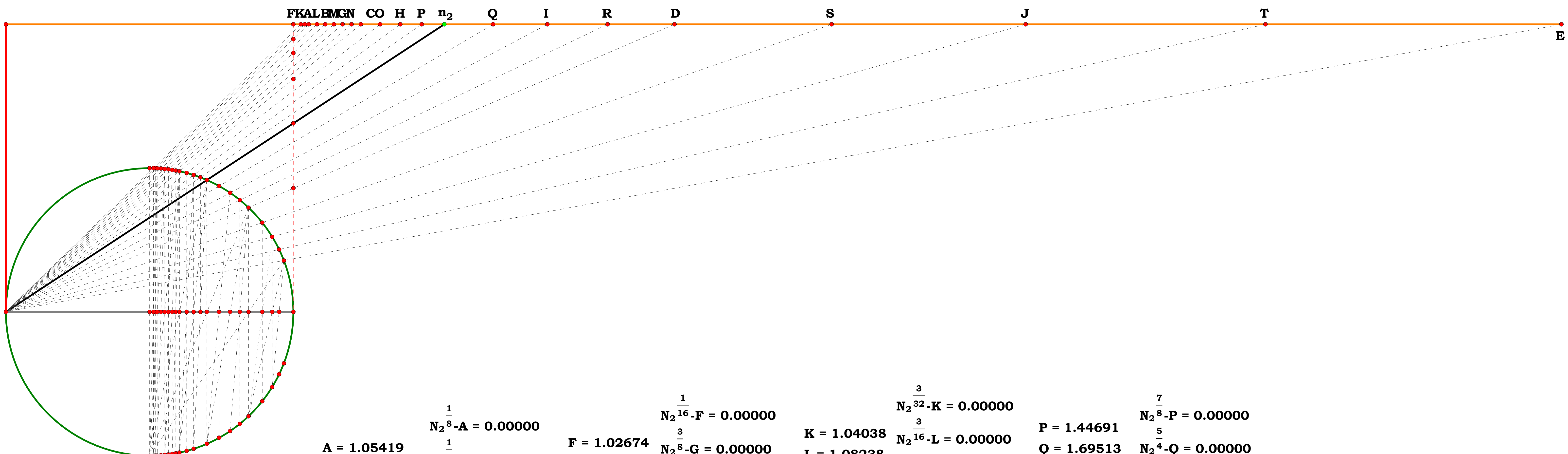
$N_2 = 1.58494$

A = 1.05926
B = 1.12203
C = 1.25894
D = 2.51204
E = 6.31034

$N_2^{\frac{1}{8}} - A = 0.00000$
$N_2^{\frac{1}{4}} - B = 0.00000$
$N_2^{\frac{1}{2}} - C = 0.00000$
$N_2^{2} - D = 0.00000$
$N_2^{4} - E = 0.00000$

F = 1.02920
G = 1.18852
H = 1.41257
I = 1.99535
J = 3.98144

$N_2^{\frac{1}{16}} - F = 0.00000$
$N_2^{\frac{3}{8}} - G = 0.00000$
$N_2^{\frac{3}{4}} - H = 0.00000$
$N_2^{\frac{3}{2}} - I = 0.00000$
$N_2^{3} - J = 0.00000$



$N_2 = 1.52533$

$A = 1.05419$
$B = 1.11132$
$C = 1.23504$
$D = 2.32662$
$E = 5.41318$

$N_2^{\frac{1}{8}} - A = 0.00000$
$N_2^{\frac{1}{4}} - B = 0.00000$
$N_2^{\frac{1}{2}} - C = 0.00000$
$N_2^{2} - D = 0.00000$
$N_2^{4} - E = 0.00000$

$F = 1.02674$
$G = 1.17155$
$H = 1.37253$
$I = 1.88384$
$J = 3.54886$

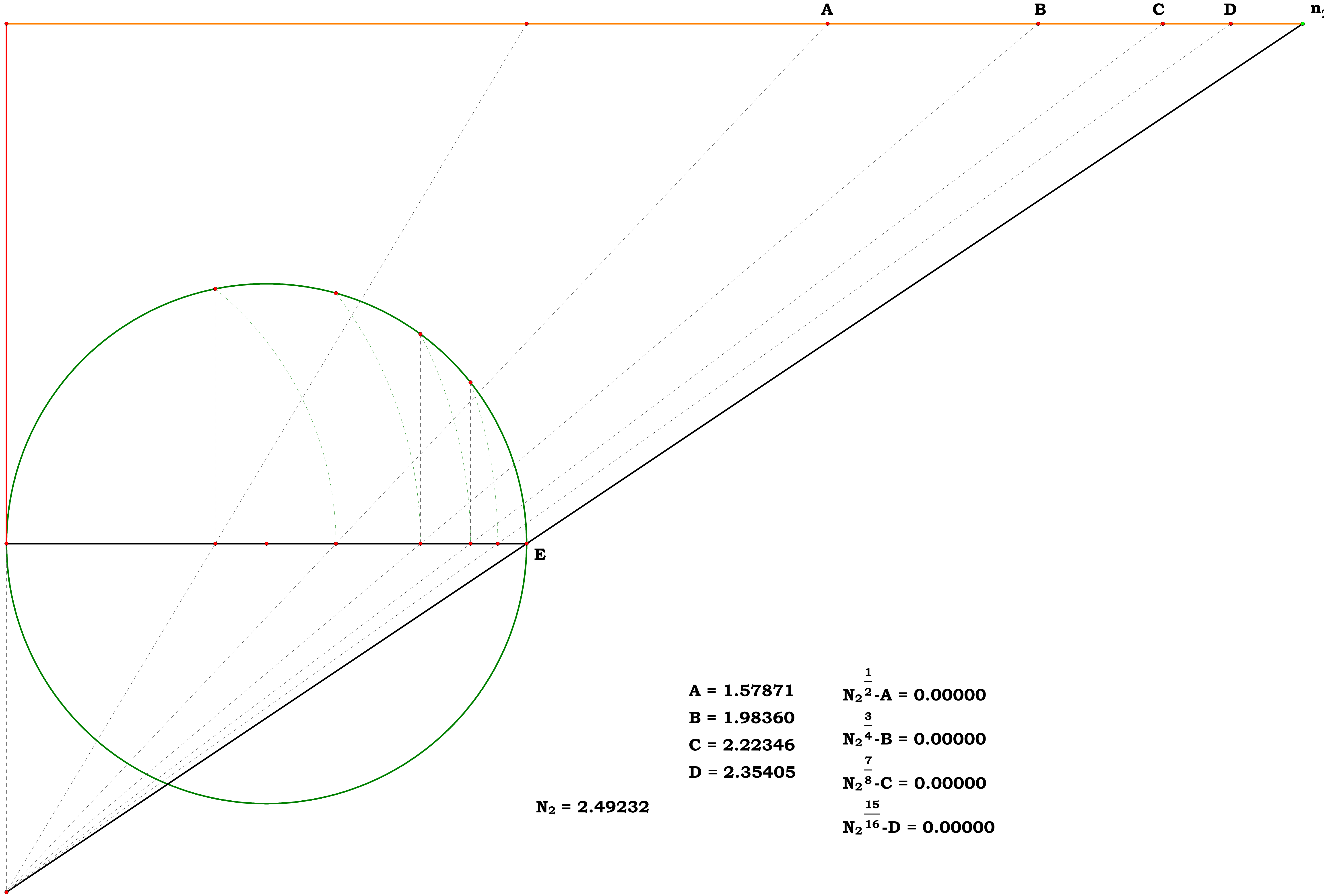
$N_2^{\frac{1}{16}} - F = 0.00000$
$N_2^{\frac{3}{8}} - G = 0.00000$
$N_2^{\frac{3}{4}} - H = 0.00000$
$N_2^{\frac{3}{2}} - I = 0.00000$
$N_2^{3} - J = 0.00000$

$K = 1.04038$
$L = 1.08238$
$M = 1.14104$
$N = 1.20288$
$O = 1.30197$

$N_2^{\frac{3}{32}} - K = 0.00000$
$N_2^{\frac{3}{16}} - L = 0.00000$
$N_2^{\frac{5}{16}} - M = 0.00000$
$N_2^{\frac{7}{16}} - N = 0.00000$
$N_2^{\frac{5}{8}} - O = 0.00000$

$P = 1.44691$
$Q = 1.69513$
$R = 2.09356$
$S = 2.87348$
$T = 4.38299$

$N_2^{\frac{7}{8}} - P = 0.00000$
$N_2^{\frac{5}{4}} - Q = 0.00000$
$N_2^{\frac{7}{4}} - R = 0.00000$
$N_2^{\frac{5}{2}} - S = 0.00000$
$N_2^{\frac{7}{2}} - T = 0.00000$


A
B
C
D
n_2
E
A = 1.57871
B = 1.98360
C = 2.22346
D = 2.35405
$N_2^{\frac{1}{2}}$-A = 0.00000
$N_2^{\frac{3}{4}}$-B = 0.00000
$N_2^{\frac{7}{8}}$-C = 0.00000
$N_2^{\frac{15}{16}}$-D = 0.00000
N_2 = 2.49232

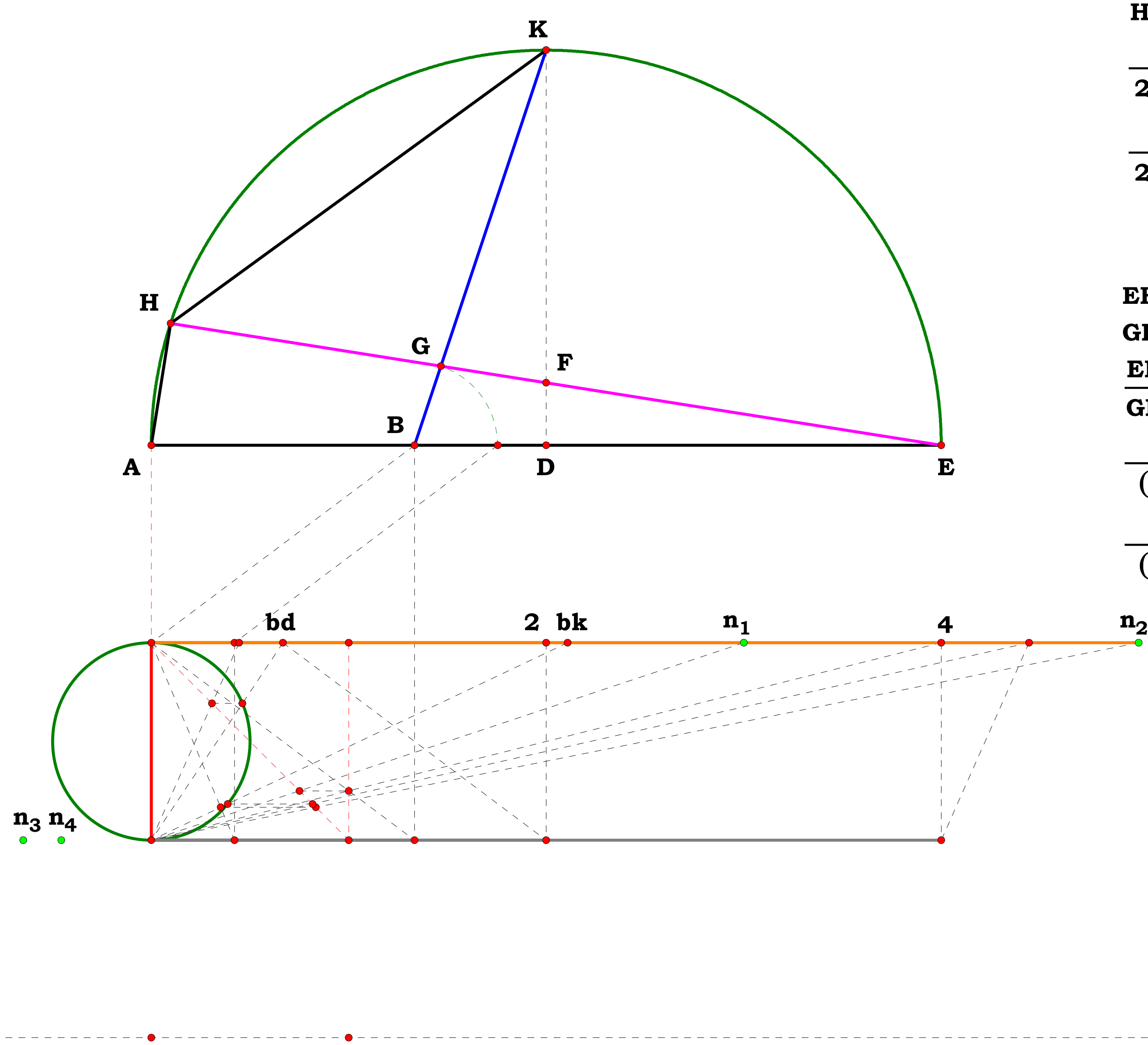
Circle
Show Lines
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

$N_1 = 3.00000$
$N_2 = 5.00000$

Points

Circle
Show Lines
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
Points
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

bd = 0.66667
bd^2 = 0.44444



AH = 0.62385

HK = 2.35269

$$\frac{AH}{HK} = 0.26517$$

$$\frac{\sqrt{2}\cdot N_1}{2\cdot(N_1-1)\cdot(N_2-1)} = 0.26517$$

$$\frac{\sqrt{2}\cdot N_1}{2\cdot(N_1-1)\cdot(N_2-1)} - \frac{AH}{HK} = 0.00000$$

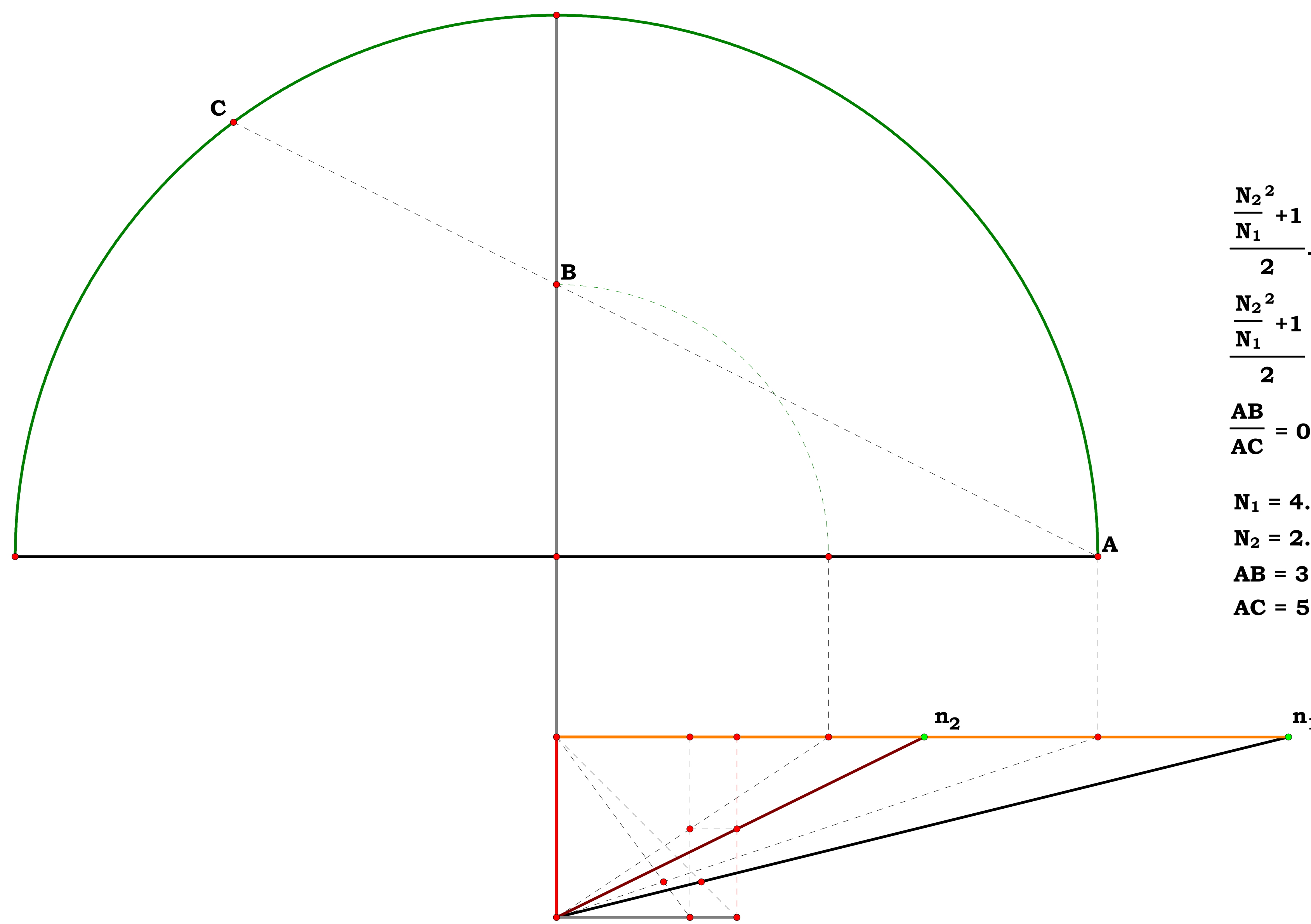
EH = 3.95105

GH = 1.38633

$$\frac{EH}{GH} = 2.85000$$

$$\frac{N_1\cdot N_2\cdot((2\cdot N_1\cdot N_2-2\cdot N_2-N_1)+2)}{(N_2-1)\cdot((((2\cdot N_1\cdot N_2-2\cdot N_2)+N_1^2)-2\cdot N_1)+2)} = 2.85000$$

$$\frac{N_1\cdot N_2\cdot((2\cdot N_1\cdot N_2-2\cdot N_2-N_1)+2)}{(N_2-1)\cdot((((2\cdot N_1\cdot N_2-2\cdot N_2)+N_1^2)-2\cdot N_1)+2)} - \frac{EH}{GH} = 0.00000$$



$$\frac{\frac{N_2^{\,2}}{N_1}+1}{2}-\frac{AB}{AC} = 0.00000$$

$$\frac{\frac{N_2^{\,2}}{N_1}+1}{2} = 0.62621$$

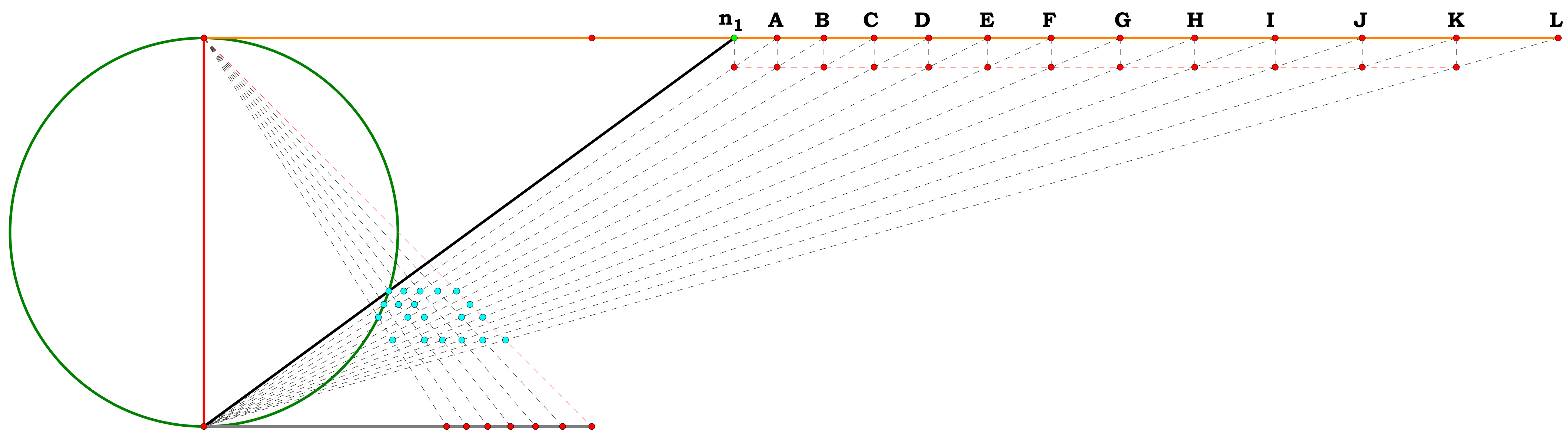
$$\frac{AB}{AC} = 0.62621$$

$N_1 = 4.05604$

$N_2 = 2.03783$

$AB = 3.35735$

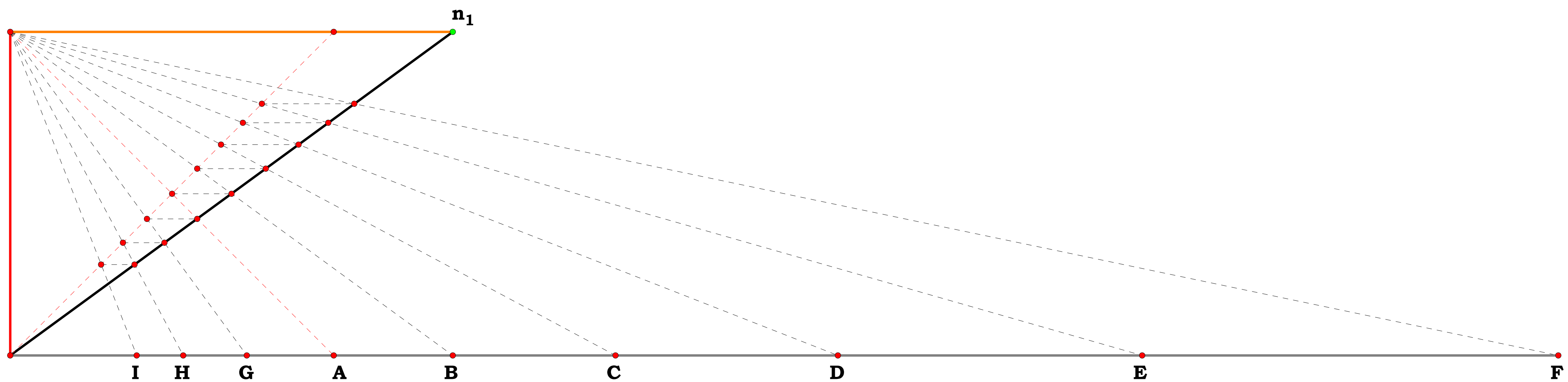
$AC = 5.36137$



$N_1 = 1.36693$

A = 1.47803	E = 2.02036	I = 2.76169
B = 1.59816	F = 2.18457	J = 2.98615
C = 1.72805	G = 2.36212	K = 3.22885
D = 1.86850	H = 2.55410	L = 3.49128

$N_1^{1.25}$-A = 0.00000	$N_1^{2.25}$-E = 0.00000	$N_1^{3.25}$-I = 0.00000
$N_1^{1.5}$-B = 0.00000	$N_1^{2.5}$-F = 0.00000	$N_1^{3.5}$-J = 0.00000
$N_1^{1.75}$-C = 0.00000	$N_1^{2.75}$-G = 0.00000	$N_1^{3.75}$-K = 0.00000
N_1^{2}-D = 0.00000	N_1^{3}-H = 0.00000	N_1^{4}-L = 0.00000



$N_1 = 1.36763$

$A = 1.00000$
$B = 1.36763$
$C = 1.87042$
$D = 2.55805$

$E = 3.49847$
$F = 4.78462$
$G = 0.73119$
$H = 0.53464$
$I = 0.39092$

$N_1^0\text{-}A = 0.00000$
$N_1^1\text{-}B = 0.00000$
$N_1^2\text{-}C = 0.00000$
$N_1^3\text{-}D = 0.00000$

$N_1^4\text{-}E = 0.00000$
$N_1^5\text{-}F = 0.00000$
$N_1^{-1}\text{-}G = 0.00000$
$N_1^{-2}\text{-}H = 0.00000$
$N_1^{-3}\text{-}I = 0.00000$

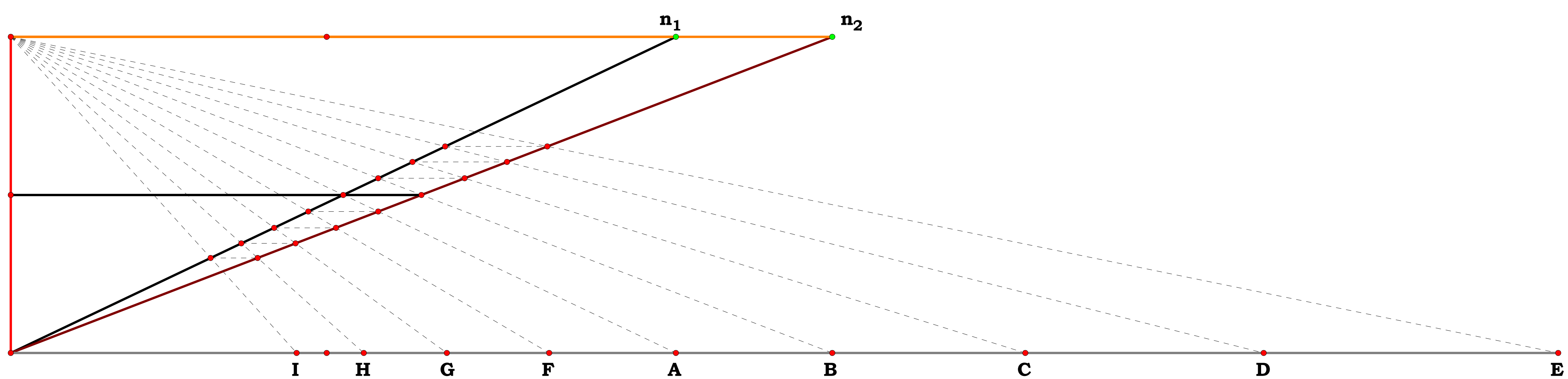
$N_1 = 2.10483$
$N_2 = 2.59960$

$x_A = 2.10483$
$x_B = 2.59960$
$x_C = 3.21068$
$x_D = 3.96539$
$x_E = 4.89752$

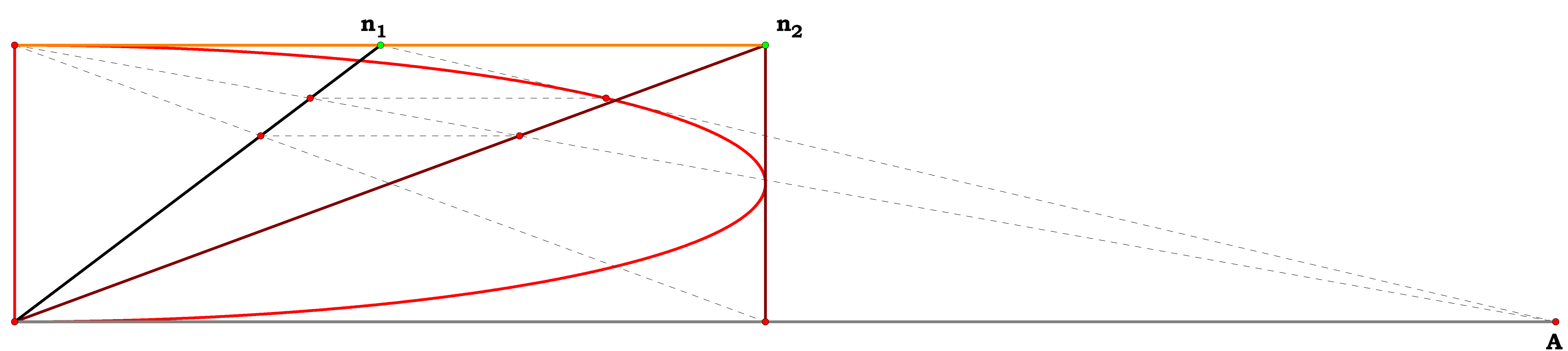
$x_F = 1.70423$
$x_G = 1.37987$
$x_H = 1.11724$
$x_I = 0.90460$

$$\frac{N_2^0}{N_1^{-1}} = 2.10483$$
$$\frac{N_2^1}{N_1^0} = 2.59960$$
$$\frac{N_2^2}{N_1^1} = 3.21068$$
$$\frac{N_2^3}{N_1^2} = 3.96539$$
$$\frac{N_2^4}{N_1^3} = 4.89752$$

$$\frac{N_2^{-1}}{N_1^{-2}} = 1.70423$$
$$\frac{N_2^{-2}}{N_1^{-3}} = 1.37987$$
$$\frac{N_2^{-3}}{N_1^{-4}} = 1.11724$$
$$\frac{N_2^{-4}}{N_1^{-5}} = 0.90460$$



From any point n_1 draw the tangent to the ellipse n_2. Or given the square n_2 divide it by n_1.



$N_1 = 1.32088$ $A = 5.56312$

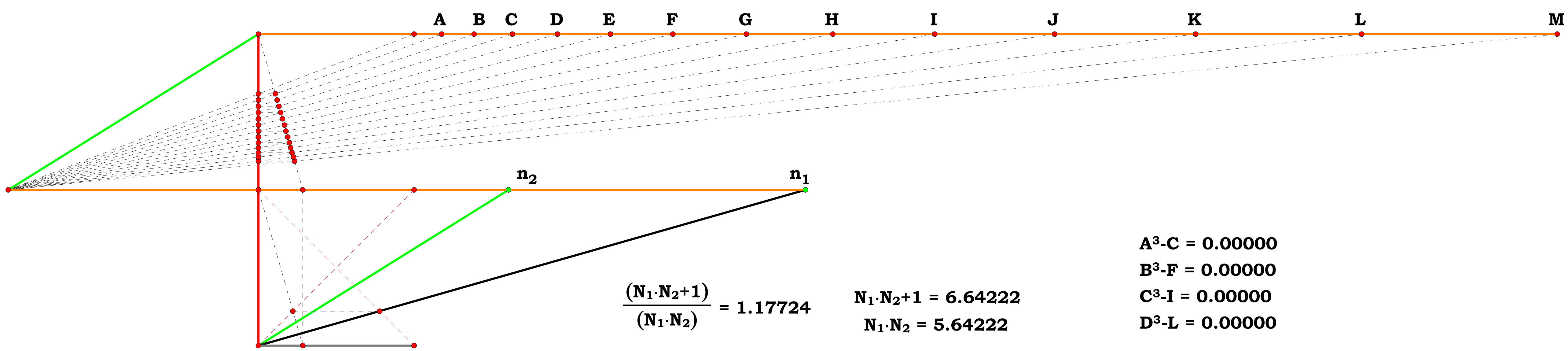
$N_2 = 2.71076$ $\frac{N_2^2}{N_1} - A = 0.00000$

$$\frac{N_1 \cdot N_2+1}{N_1 \cdot N_2}^{1} - A = 0.00000$$
$$\frac{(N_1 \cdot N_2+1)}{(N_1 \cdot N_2)}^{2} - B = 0.00000$$
$$\frac{(N_1 \cdot N_2+1)}{(N_1 \cdot N_2)}^{3} - C = 0.00000$$
$$\frac{(N_1 \cdot N_2+1)}{(N_1 \cdot N_2)}^{4} - D = 0.00000$$
$$\frac{(N_1 \cdot N_2+1)}{(N_1 \cdot N_2)}^{5} - E = 0.00000$$
$$\frac{(N_1 \cdot N_2+1)}{(N_1 \cdot N_2)}^{6} - F = 0.00000$$
$$\frac{(N_1 \cdot N_2+1)}{(N_1 \cdot N_2)}^{7} - G = 0.00000$$
$$\frac{(N_1 \cdot N_2+1)}{(N_1 \cdot N_2)}^{8} - H = 0.00000$$
$$\frac{(N_1 \cdot N_2+1)}{(N_1 \cdot N_2)}^{9} - I = 0.00000$$
$$\frac{(N_1 \cdot N_2+1)}{(N_1 \cdot N_2)}^{10} - J = 0.00000$$
$$\frac{(N_1 \cdot N_2+1)}{(N_1 \cdot N_2)}^{11} - K = 0.00000$$
$$\frac{(N_1 \cdot N_2+1)}{(N_1 \cdot N_2)}^{12} - L = 0.00000$$
$$\frac{(N_1 \cdot N_2+1)}{(N_1 \cdot N_2)}^{13} - M = 0.00000$$

$A^2-B = 0.00000$
$(A \cdot B)-C = 0.00000$
$B^2-D = 0.00000$
$(B \cdot C)-E = 0.00000$

$C^2-F = 0.00000$
$(C \cdot D)-G = 0.00000$
$D^2-H = 0.00000$
$(D \cdot E)-I = 0.00000$

$E^2-J = 0.00000$
$(E \cdot F)-K = 0.00000$
$F^2-L = 0.00000$
$(F \cdot G)-M = 0.00000$



$$\frac{(N_1 \cdot N_2+1)}{(N_1 \cdot N_2)} = 1.17724$$

$N_1 \cdot N_2+1 = 6.64222$
$N_1 \cdot N_2 = 5.64222$

$A^3-C = 0.00000$
$B^3-F = 0.00000$
$C^3-I = 0.00000$
$D^3-L = 0.00000$

$N_1 = 3.51340$
$N_2 = 1.60591$

$A = 1.17724$
$B = 1.38588$
$C = 1.63151$
$D = 1.92067$
$E = 2.26108$

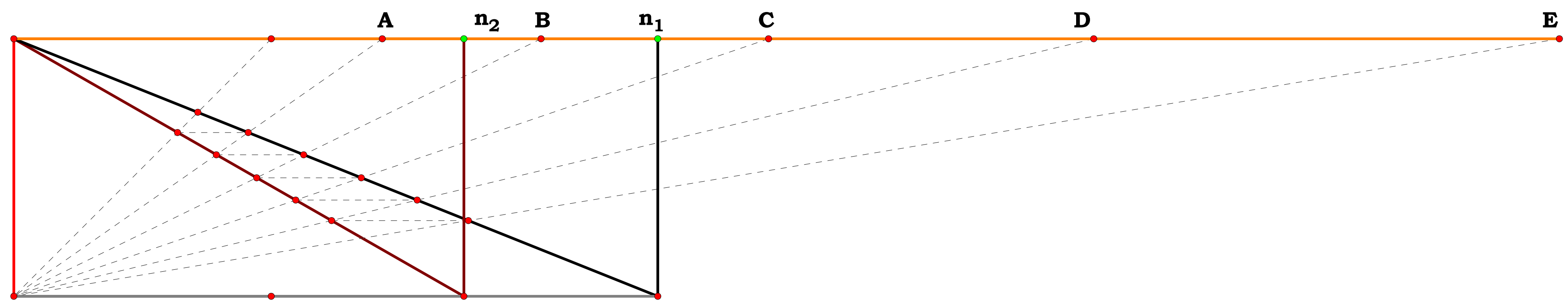
$F = 2.66183$
$G = 3.13360$
$H = 3.68898$
$I = 4.34280$

$J = 5.11249$
$K = 6.01861$
$L = 7.08532$
$M = 8.34108$

$A^2 = 1.38588$
$A \cdot B = 1.63151$
$B^2 = 1.92067$
$B \cdot C = 2.26108$

$C^2 = 2.66183$
$C \cdot D = 3.13360$
$D^2 = 3.68898$
$D \cdot E = 4.34280$

$E^2 = 5.11249$
$E \cdot F = 6.01861$
$F^2 = 7.08532$
$F \cdot G = 8.34108$



A = 1.43109

B = 2.04801

C = 2.93088

D = 4.19435

E = 6.00248

$\frac{N_1}{N_2}$-A = 0.00000

$\frac{N_1{}^2}{N_2}$-B = 0.00000

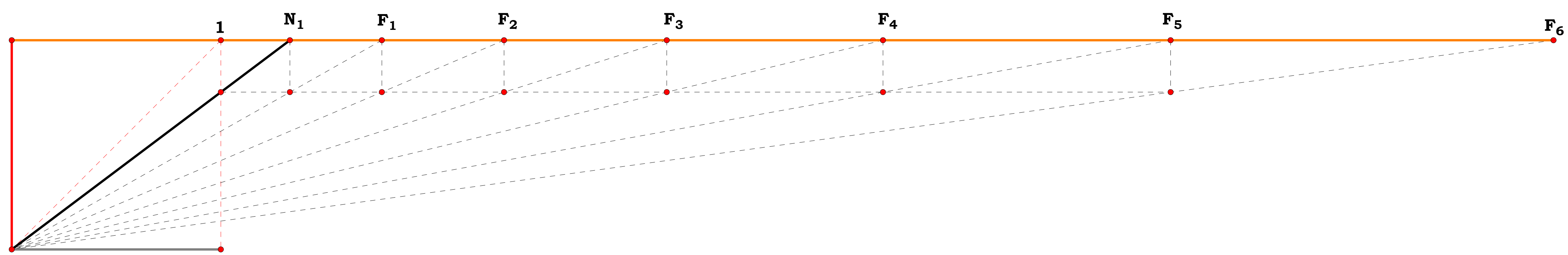
$\frac{N_1{}^3}{N_2}$-C = 0.00000

$\frac{N_1{}^4}{N_2}$-D = 0.00000

$\frac{N_1{}^5}{N_2}$-E = 0.00000

$N_1 = 1.33026$

$F_1 = 1.76959$	$N_1^2 - F_1 = 0.00000$
$F_2 = 2.35402$	$N_1^3 - F_2 = 0.00000$
$F_3 = 3.13146$	$N_1^4 - F_3 = 0.00000$
$F_4 = 4.16565$	$N_1^5 - F_4 = 0.00000$
$F_5 = 5.54140$	$N_1^6 - F_5 = 0.00000$
$F_6 = 7.37150$	$N_1^7 - F_6 = 0.00000$



$N_1 = 5.94204$

$\dfrac{N_1}{N_1-1} = 1.20235$

$F_1 = 1.20235$
$F_2 = 1.44564$
$F_3 = 1.73815$
$F_4 = 2.08986$
$F_5 = 2.51273$
$F_6 = 3.02118$
$F_7 = 3.63250$
$F_8 = 4.36752$

$\dfrac{N_1}{N_1-1} - F_1 = 0.00000$

$\left(\dfrac{N_1}{N_1-1}\right)^2 - F_2 = 0.00000$

$\left(\dfrac{N_1}{N_1-1}\right)^3 - F_3 = 0.00000$

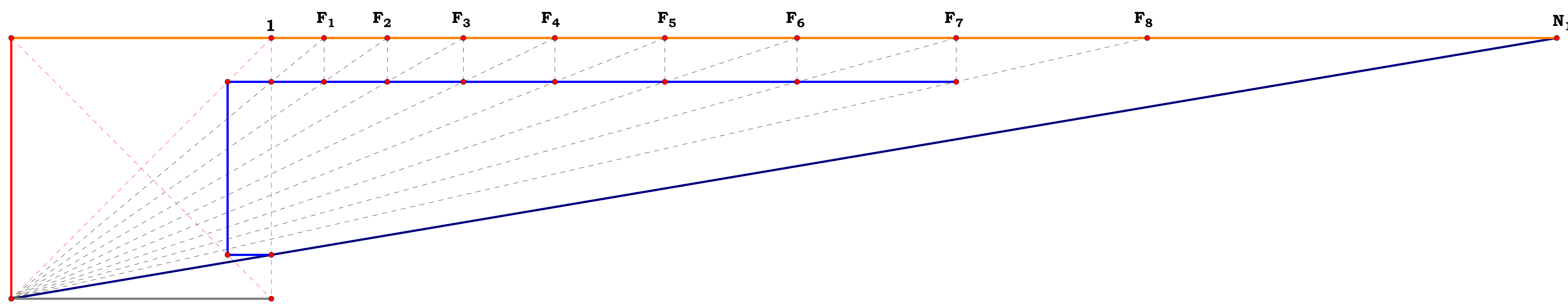
$\left(\dfrac{N_1}{N_1-1}\right)^4 - F_4 = 0.00000$

$\left(\dfrac{N_1}{N_1-1}\right)^5 - F_5 = 0.00000$

$\left(\dfrac{N_1}{N_1-1}\right)^6 - F_6 = 0.00000$

$\left(\dfrac{N_1}{N_1-1}\right)^7 - F_7 = 0.00000$

$\left(\dfrac{N_1}{N_1-1}\right)^8 - F_8 = 0.00000$



$F_1 = 0.48068$ $N_1 \cdot (N_1+1) - F_1 = 0.00000$

$F_2 = 0.65122$ $N_1 \cdot (N_1+1)^2 - F_2 = 0.00000$

$F_3 = 0.88227$ $N_1 \cdot (N_1+1)^3 - F_3 = 0.00000$

$F_4 = 1.19530$ $N_1 \cdot (N_1+1)^4 - F_4 = 0.00000$

$F_5 = 1.61939$ $N_1 \cdot (N_1+1)^5 - F_5 = 0.00000$

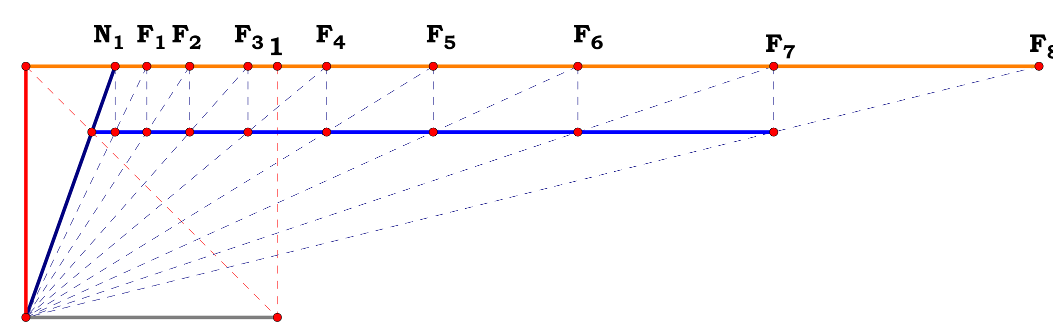
$F_6 = 2.19395$ $N_1 \cdot (N_1+1)^6 - F_6 = 0.00000$

$F_7 = 2.97235$ $N_1 \cdot (N_1+1)^7 - F_7 = 0.00000$

$F_8 = 4.02694$ $N_1 \cdot (N_1+1)^8 - F_8 = 0.00000$

$N_1 = 0.35480$

$N_1+1 = 1.35480$



$N_1 = 0.81930$

$\frac{1}{N_1} = 1.22055$

$F_1 = 1.22055$
$F_2 = 1.48974$
$F_3 = 1.81830$
$F_4 = 2.21933$
$F_5 = 2.70881$
$F_6 = 3.30623$
$F_7 = 4.03542$
$F_8 = 4.92544$

$\frac{1}{N_1} - F_1 = 0.00000$

$\frac{1}{N_1}^{2} - F_2 = 0.00000$

$\frac{1}{N_1}^{3} - F_3 = 0.00000$

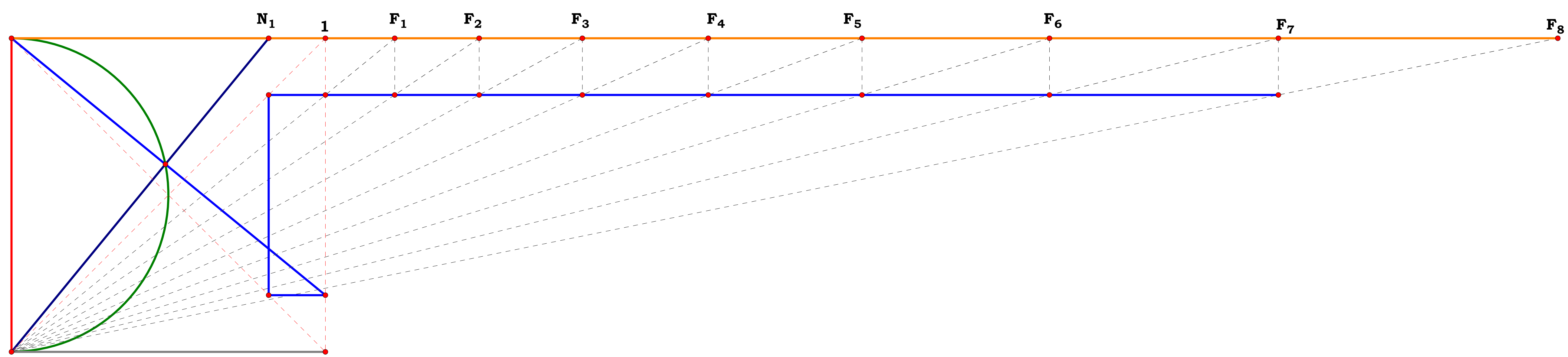
$\frac{1}{N_1}^{4} - F_4 = 0.00000$

$\frac{1}{N_1}^{5} - F_5 = 0.00000$

$\frac{1}{N_1}^{6} - F_6 = 0.00000$

$\frac{1}{N_1}^{7} - F_7 = 0.00000$

$\frac{1}{N_1}^{8} - F_8 = 0.00000$



$N_1 = 5.86974$

$\frac{N_1+1}{N_1} = 1.17037$

$F_1 = 1.17037$
$F_2 = 1.36975$
$F_3 = 1.60311$
$F_4 = 1.87623$
$F_5 = 2.19587$
$F_6 = 2.56997$
$F_7 = 3.00781$
$F_8 = 3.52023$

$\frac{N_1+1}{N_1} - F_1 = 0.00000$

$\frac{N_1+1}{N_1}^{2} - F_2 = 0.00000$

$\frac{N_1+1}{N_1}^{3} - F_3 = 0.00000$

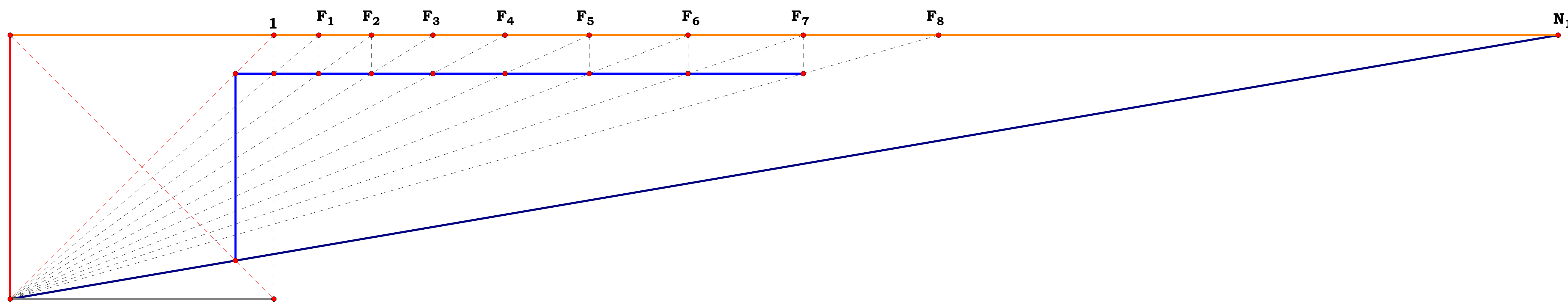
$\frac{N_1+1}{N_1}^{4} - F_4 = 0.00000$

$\frac{N_1+1}{N_1}^{5} - F_5 = 0.00000$

$\frac{N_1+1}{N_1}^{6} - F_6 = 0.00000$

$\frac{N_1+1}{N_1}^{7} - F_7 = 0.00000$

$\frac{N_1+1}{N_1}^{8} - F_8 = 0.00000$



$N_1 = 1.67971$

$\frac{1}{N_1} = 0.59534$

$\frac{N_1^2+1}{N_1^2} = 1.35443$

$F_1 = 0.59534$
$F_2 = 0.80634$
$F_3 = 1.09214$
$F_4 = 1.47922$
$F_5 = 2.00350$
$F_6 = 2.71360$
$F_7 = 3.67537$
$F_8 = 4.97803$

$\frac{1}{N_1}\cdot\frac{N_1^2+1^{\,0}}{N_1^2}-F_1 = 0.00000$

$\frac{1}{N_1}\cdot\frac{N_1^2+1^{\,1}}{N_1^2}-F_2 = 0.00000$

$\frac{1}{N_1}\cdot\frac{N_1^2+1^{\,2}}{N_1^2}-F_3 = 0.00000$

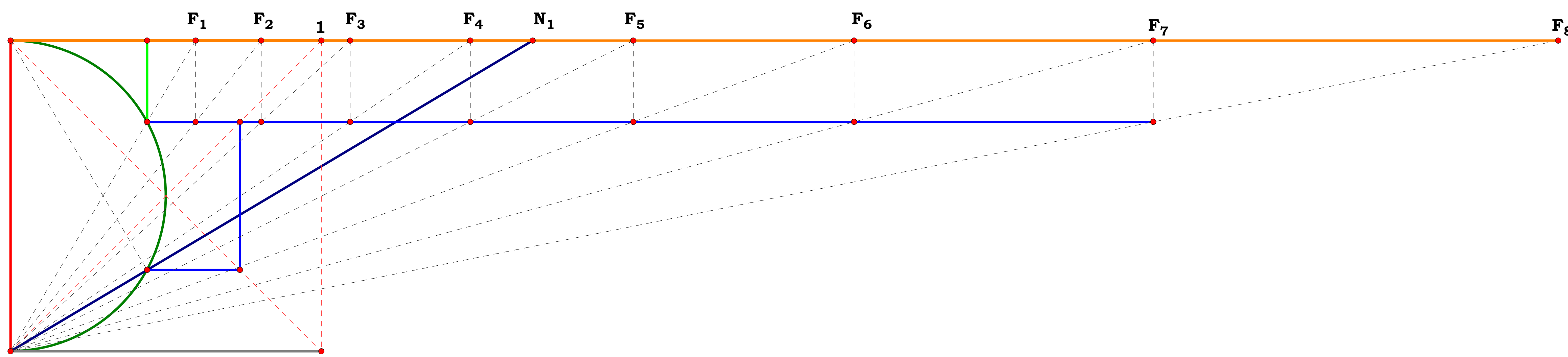
$\frac{1}{N_1}\cdot\frac{N_1^2+1^{\,3}}{N_1^2}-F_4 = 0.00000$

$\frac{1}{N_1}\cdot\frac{N_1^2+1^{\,4}}{N_1^2}-F_5 = 0.00000$

$\frac{1}{N_1}\cdot\frac{N_1^2+1^{\,5}}{N_1^2}-F_6 = 0.00000$

$\frac{1}{N_1}\cdot\frac{N_1^2+1^{\,6}}{N_1^2}-F_7 = 0.00000$

$\frac{1}{N_1}\cdot\frac{N_1^2+1^{\,7}}{N_1^2}-F_8 = 0.00000$

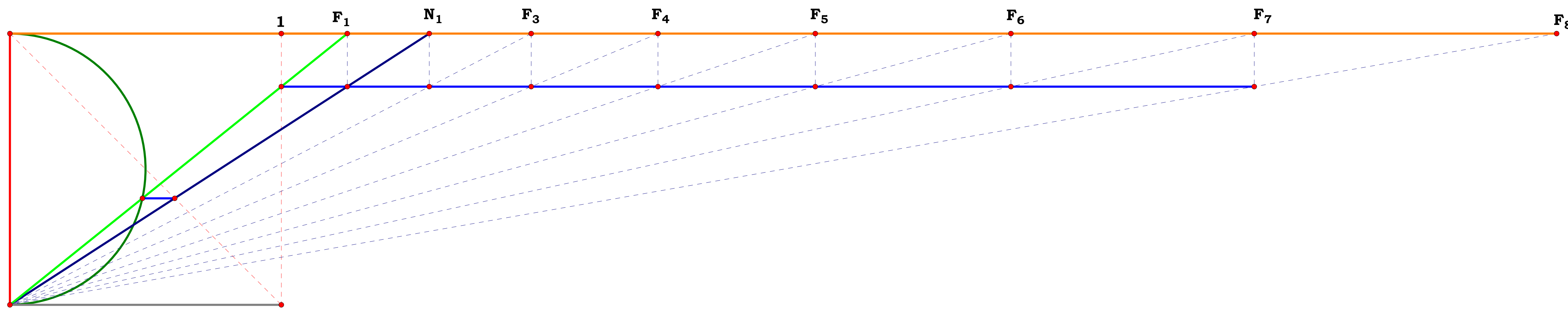


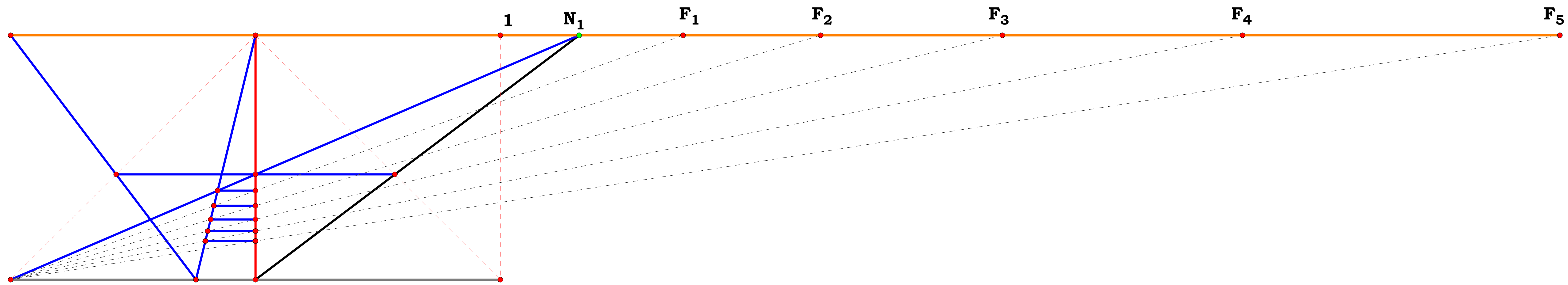
$N_1 = 1.54499$

$\sqrt{N_1} = 1.24298$

$F_1 = 1.24298$
$F_2 = 1.54499$
$F_3 = 1.92039$
$F_4 = 2.38700$
$F_5 = 2.96698$
$F_6 = 3.68789$
$F_7 = 4.58397$
$F_8 = 5.69776$

$\sqrt{N_1}-F_1 = 0.00000$
$\sqrt{N_1}^2-F_2 = 0.00000$
$\sqrt{N_1}^3-F_3 = 0.00000$
$\sqrt{N_1}^4-F_4 = 0.00000$
$\sqrt{N_1}^5-F_5 = 0.00000$
$\sqrt{N_1}^6-F_6 = 0.00000$
$\sqrt{N_1}^7-F_7 = 0.00000$
$\sqrt{N_1}^8-F_8 = 0.00000$





$N_1 = 1.32152$

$F_1 = 1.74642$	$N_1^2 - F_1 = 0.00000$
$F_2 = 2.30793$	$N_1^3 - F_2 = 0.00000$
$F_3 = 3.04998$	$N_1^4 - F_3 = 0.00000$
$F_4 = 4.03062$	$N_1^5 - F_4 = 0.00000$
$F_5 = 5.32655$	$N_1^6 - F_5 = 0.00000$

$N_1 = 2.00000$

$\frac{N_1^2+1}{N_1^2} = 1.25000$

$F_1 = 1.25000$
$F_2 = 1.56250$
$F_3 = 1.95313$
$F_4 = 2.44141$
$F_5 = 3.05176$
$F_6 = 3.81470$
$F_7 = 4.76837$
$F_8 = 5.96046$

$\frac{N_1^2+1}{N_1^2}-F_1 = 0.00000$

$\frac{N_1^2+1^{\ 2}}{N_1^2}-F_2 = 0.00000$

$\frac{N_1^2+1^{\ 3}}{N_1^2}-F_3 = 0.00000$

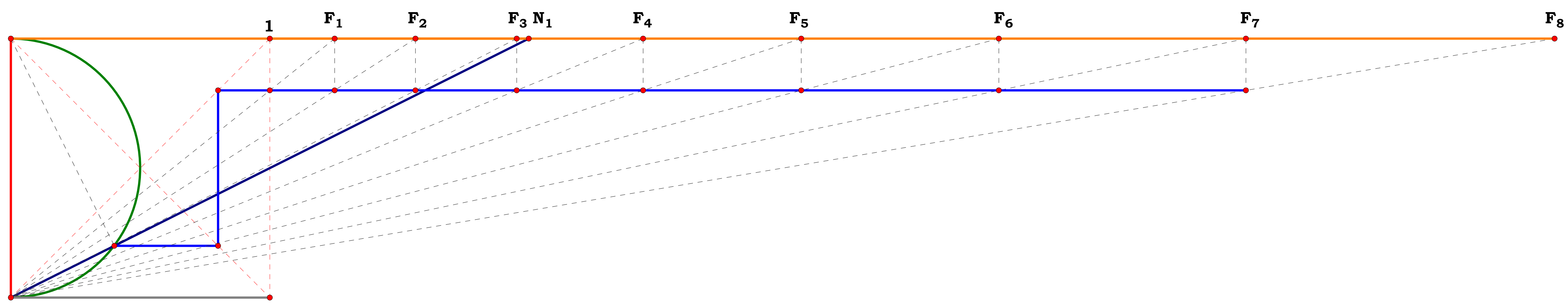
$\frac{N_1^2+1^{\ 4}}{N_1^2}-F_4 = 0.00000$

$\frac{N_1^2+1^{\ 5}}{N_1^2}-F_5 = 0.00000$

$\frac{N_1^2+1^{\ 6}}{N_1^2}-F_6 = 0.00000$

$\frac{N_1^2+1^{\ 7}}{N_1^2}-F_7 = 0.00000$

$\frac{N_1^2+1^{\ 8}}{N_1^2}-F_8 = 0.00000$



$N_1 = 1.34536$

$\frac{N_1^2+1}{N_1} = 2.08865$

$F_1 = 2.08865$

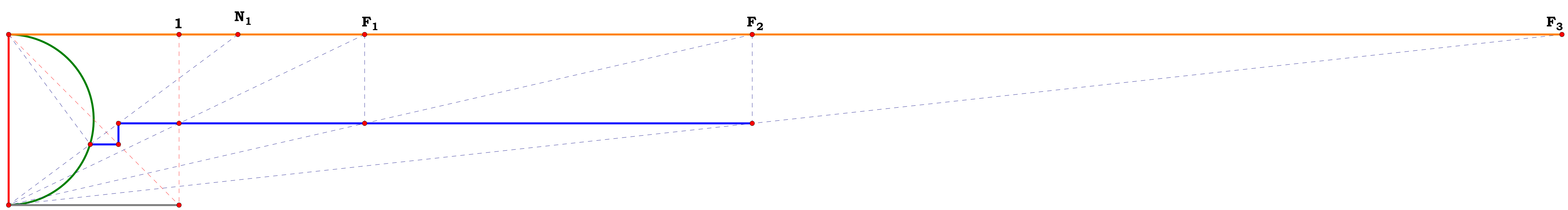
$F_2 = 4.36248$

$F_3 = 9.11171$

$\frac{N_1^2+1}{N_1} - F_1 = 0.00000$

$\left(\frac{N_1^2+1}{N_1}\right)^2 - F_2 = 0.00000$

$\left(\frac{N_1^2+1}{N_1}\right)^3 - F_3 = 0.00000$



$N_1 = 1.64904$

$\frac{1}{\sqrt{N_1-1}} = 1.24126$

$F_1 = 1.24126$
$F_2 = 1.54073$
$F_3 = 1.91245$
$F_4 = 2.37385$
$F_5 = 2.94657$
$F_6 = 3.65746$
$F_7 = 4.53987$

$\frac{1}{\sqrt{N_1-1}} - F_1 = 0.00000$

$\frac{1}{\sqrt{N_1-1}}^{2} - F_2 = 0.00000$

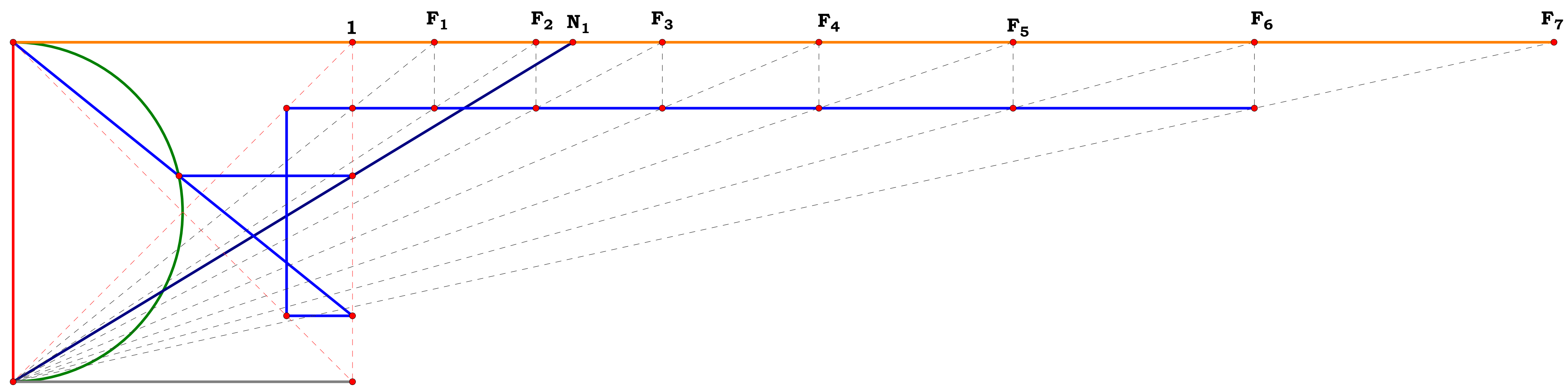
$\frac{1}{\sqrt{N_1-1}}^{3} - F_3 = 0.00000$

$\frac{1}{\sqrt{N_1-1}}^{4} - F_4 = 0.00000$

$\frac{1}{\sqrt{N_1-1}}^{5} - F_5 = 0.00000$

$\frac{1}{\sqrt{N_1-1}}^{6} - F_6 = 0.00000$

$\frac{1}{\sqrt{N_1-1}}^{7} - F_7 = 0.00000$



$F_1 = 1.18176$ $(N_1^2+1)-F_1 = 0.00000$

$F_2 = 1.39656$ $(N_1^2+1)^2-F_2 = 0.00000$

$F_3 = 1.65041$ $(N_1^2+1)^3-F_3 = 0.00000$

$F_4 = 1.95039$ $(N_1^2+1)^4-F_4 = 0.00000$

$F_5 = 2.30490$ $(N_1^2+1)^5-F_5 = 0.00000$

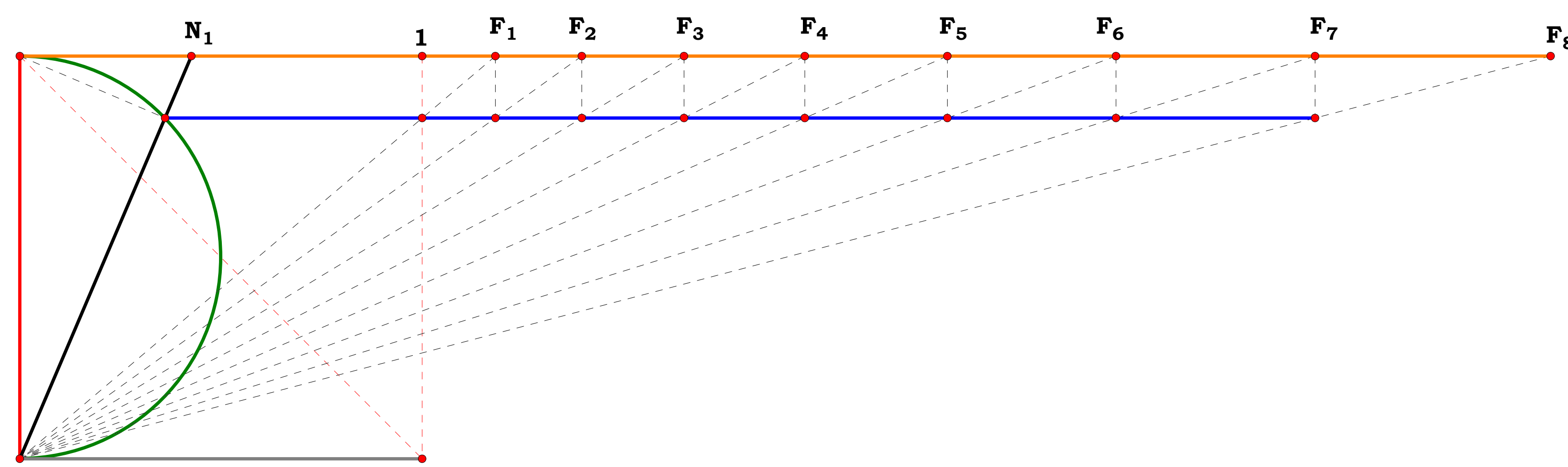
$N_1 = 0.42634$

$F_6 = 2.72385$ $(N_1^2+1)^6-F_6 = 0.00000$

$N_1^2+1 = 1.18176$

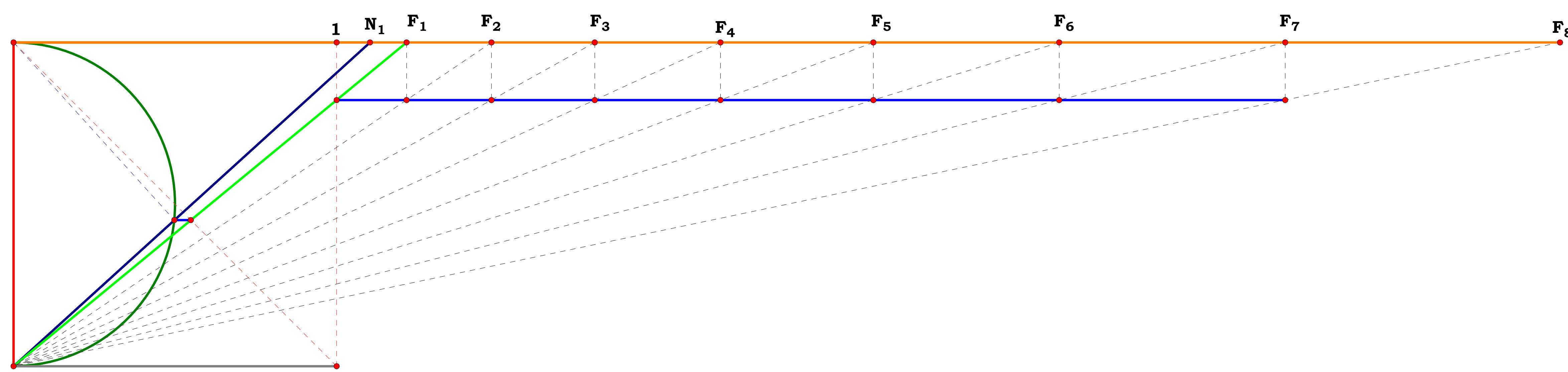
$F_7 = 3.21895$ $(N_1^2+1)^7-F_7 = 0.00000$

$F_8 = 3.80404$ $(N_1^2+1)^8-F_8 = 0.00000$



$N_1 = 1.10280$

$F_1 = 1.21617$	$N_1^2 - F_1 = 0.00000$
$F_2 = 1.47906$	$N_1^4 - F_2 = 0.00000$
$F_3 = 1.79878$	$N_1^6 - F_3 = 0.00000$
$F_4 = 2.18762$	$N_1^8 - F_4 = 0.00000$
$F_5 = 2.66051$	$N_1^{10} - F_5 = 0.00000$
$F_6 = 3.23562$	$N_1^{12} - F_6 = 0.00000$
$F_7 = 3.93505$	$N_1^{14} - F_7 = 0.00000$
$F_8 = 4.78567$	$N_1^{16} - F_8 = 0.00000$



$N_1 = 1.39071$

$F_1 = 2.02726$

$F_2 = 4.10977$

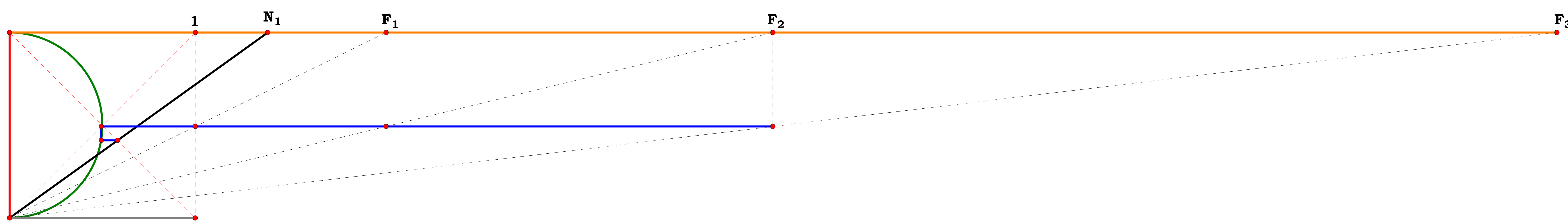
$F_3 = 8.33156$

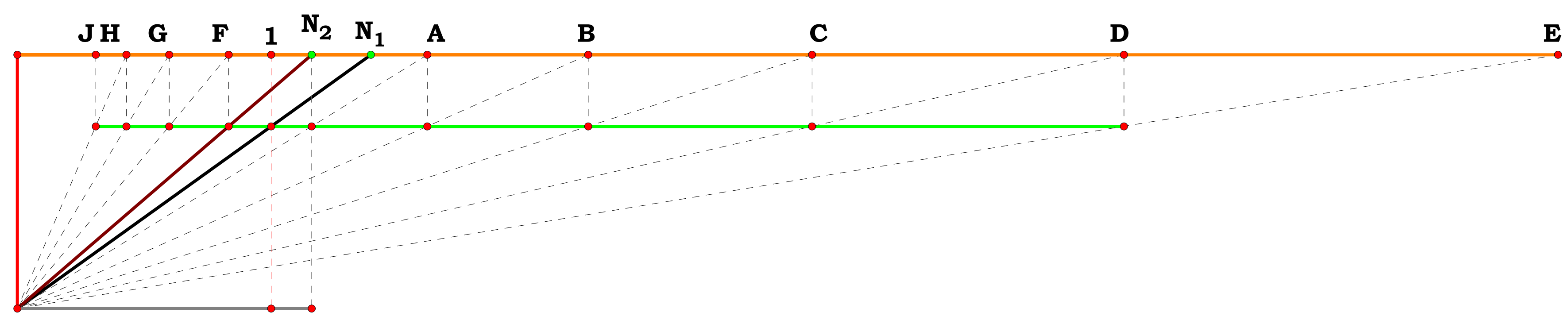
$\frac{N_1+1}{\sqrt{N_1}} = 2.02726$

$\frac{N_1+1}{\sqrt{N_1}}-F_1 = 0.00000$

$\frac{N_1+1^{\;2}}{\sqrt{N_1}} -F_2 = 0.00000$

$\frac{N_1+1^{\;3}}{\sqrt{N_1}} -F_3 = 0.00000$





$N_1 = 1.39234$

$N_2 = 1.15968$

$A = 1.61466$

$B = 2.24815$

$C = 3.13018$

$D = 4.35827$

$E = 6.06818$

$F = 0.83290$

$G = 0.59820$

$H = 0.42964$

$J = 0.30857$

$N_2 \cdot N_1^{1} - A = 0.00000$

$N_2 \cdot N_1^{2} - B = 0.00000$

$N_2 \cdot N_1^{3} - C = 0.00000$

$N_2 \cdot N_1^{4} - D = 0.00000$

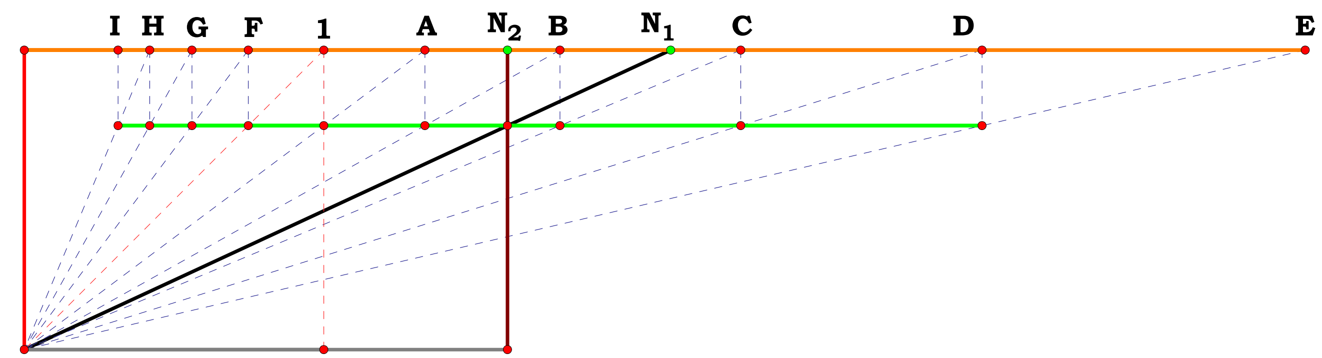
$N_2 \cdot N_1^{5} - E = 0.00000$

$N_2 \cdot N_1^{-1} - F = 0.00000$

$N_2 \cdot N_1^{-2} - G = 0.00000$

$N_2 \cdot N_1^{-3} - H = 0.00000$

$N_2 \cdot N_1^{-4} - J = 0.00000$



$N_1 = 2.15726$

$N_2 = 1.61326$

$\frac{N_1}{N_2} = 1.33720$

A = 1.33720
B = 1.78811
C = 2.39107
D = 3.19734
E = 4.27549
F = 0.74783
G = 0.55925
H = 0.41822
I = 0.31276

$\frac{N_1}{N_2}^{1} - A = 0.00000$

$\frac{N_1}{N_2}^{2} - B = 0.00000$

$\frac{N_1}{N_2}^{3} - C = 0.00000$

$\frac{N_1}{N_2}^{4} - D = 0.00000$

$\frac{N_1}{N_2}^{5} - E = 0.00000$

$\frac{N_1}{N_2}^{-1} - F = 0.00000$

$\frac{N_1}{N_2}^{-2} - G = 0.00000$

$\frac{N_1}{N_2}^{-3} - H = 0.00000$

$\frac{N_1}{N_2}^{-4} - I = 0.00000$

Plate 3

$\frac{N_1}{N_2} - A = 0.00000$

$\frac{N_1^2}{N_2^2} - B = 0.00000$

$\frac{N_1^3}{N_2^3} - C = 0.00000$

$\frac{N_1^4}{N_2^4} - D = 0.00000$

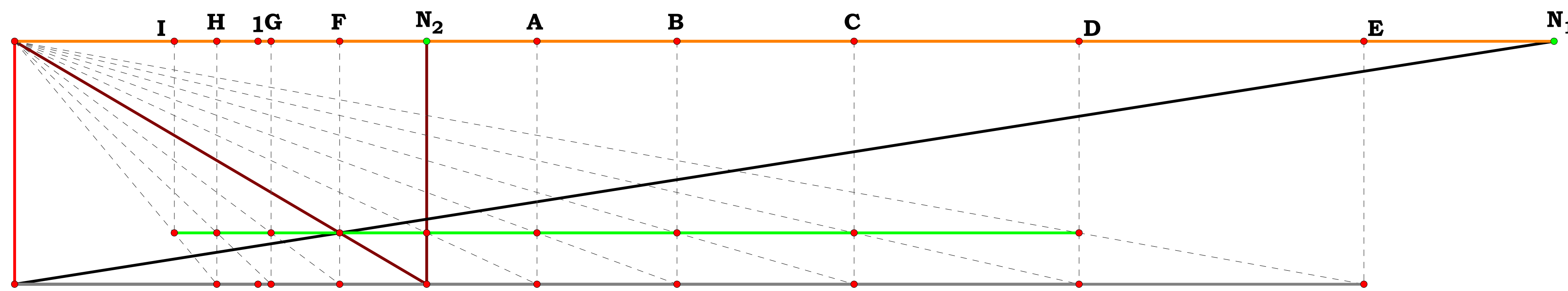
$\frac{N_1^5}{N_2^5} - E = 0.00000$

$\frac{N_2^4}{N_1^4} - I = 0.00000$

$\frac{N_2^3}{N_1^3} - H = 0.00000$

$\frac{N_2^2}{N_1^2} - G = 0.00000$

$\frac{N_2}{N_1} - F = 0.00000$



$N_1 = 6.32383$

$N_2 = 1.69284$

$A = 2.14600$

$B = 2.72047$

$C = 3.44872$

$D = 4.37192$

$E = 5.54225$

$$N_2 \cdot {\frac{N_1+N_2}{N_1}}^{1} - A = 0.00000$$

$$N_2 \cdot {\frac{N_1+N_2}{N_1}}^{2} - B = 0.00000$$

$$N_2 \cdot {\frac{N_1+N_2}{N_1}}^{3} - C = 0.00000$$

$$N_2 \cdot {\frac{N_1+N_2}{N_1}}^{4} - D = 0.00000$$

$$N_2 \cdot {\frac{N_1+N_2}{N_1}}^{5} - E = 0.00000$$

$F = 1.33537$

$G = 1.05339$

$H = 0.83095$

$I = 0.65548$

$$N_2 \cdot {\frac{N_1+N_2}{N_1}}^{-1} - F = 0.00000$$

$$N_2 \cdot {\frac{N_1+N_2}{N_1}}^{-2} - G = 0.00000$$

$$N_2 \cdot {\frac{N_1+N_2}{N_1}}^{-3} - H = 0.00000$$

$$N_2 \cdot {\frac{N_1+N_2}{N_1}}^{-4} - I = 0.00000$$

$N_1 = 5.09097$

$N_2 = 1.14146$

$\dfrac{N_1}{N_1-1} = 1.24444$

$F_1 = 1.42048$

$F_2 = 1.76770$

$F_3 = 2.19980$

$F_4 = 2.73752$

$F_5 = 3.40668$

$F_6 = 4.23941$

$N_2 \cdot \dfrac{N_1}{N_1-1} - F_1 = 0.00000$

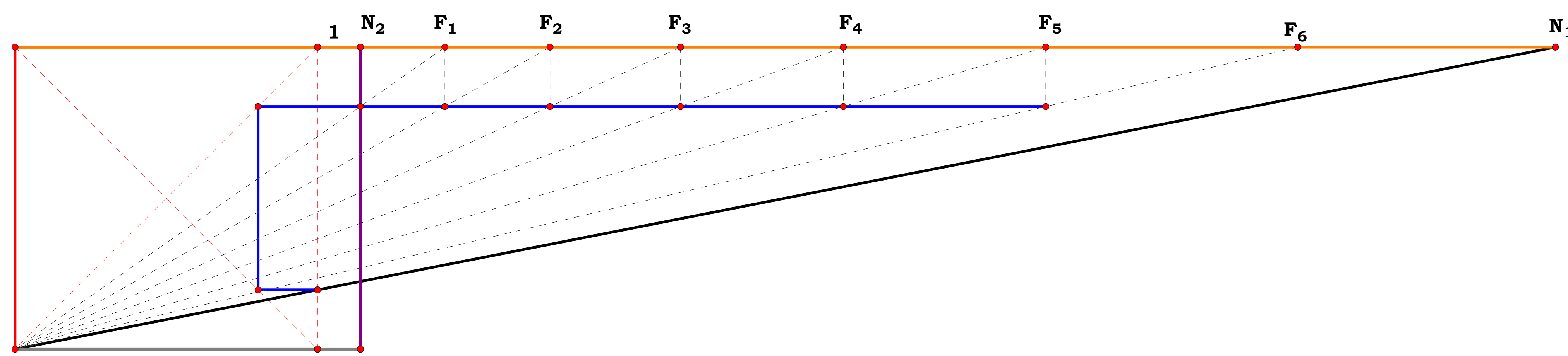
$N_2 \cdot \left(\dfrac{N_1}{N_1-1}\right)^2 - F_2 = 0.00000$

$N_2 \cdot \left(\dfrac{N_1}{N_1-1}\right)^3 - F_3 = 0.00000$

$N_2 \cdot \left(\dfrac{N_1}{N_1-1}\right)^4 - F_4 = 0.00000$

$N_2 \cdot \left(\dfrac{N_1}{N_1-1}\right)^5 - F_5 = 0.00000$

$N_2 \cdot \left(\dfrac{N_1}{N_1-1}\right)^6 - F_6 = 0.00000$



$N_1 = 6.58126$

$N_2 = 1.32761$

$$\frac{N_1}{N_1\text{-}N_2} = 1.25270$$

$F_1 = 1.25270$

$F_2 = 1.56926$

$F_3 = 1.96582$

$F_4 = 2.46259$

$F_5 = 3.08489$

$F_6 = 3.86445$

$F_7 = 4.84100$

$F_8 = 6.06433$

$$\frac{N_1}{N_1\text{-}N_2}\text{-}F_1 = 0.00000$$

$$\frac{N_1}{N_1\text{-}N_2}^2\text{-}F_2 = 0.00000$$

$$\frac{N_1}{N_1\text{-}N_2}^3\text{-}F_3 = 0.00000$$

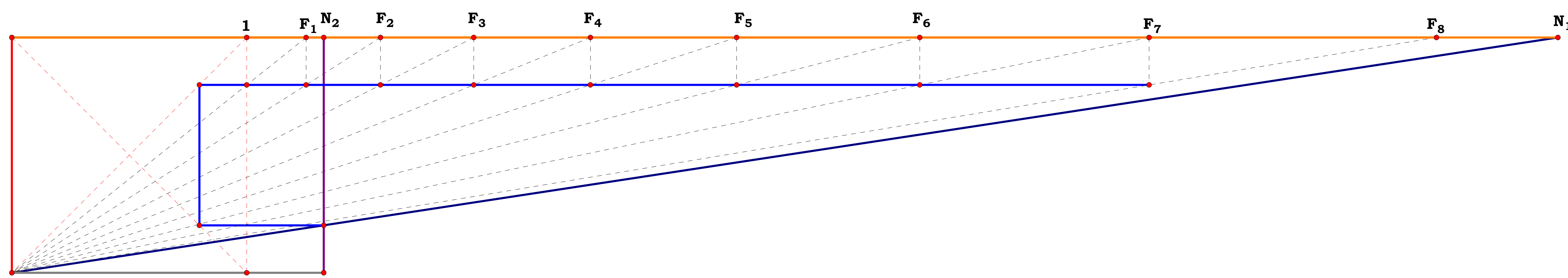
$$\frac{N_1}{N_1\text{-}N_2}^4\text{-}F_4 = 0.00000$$

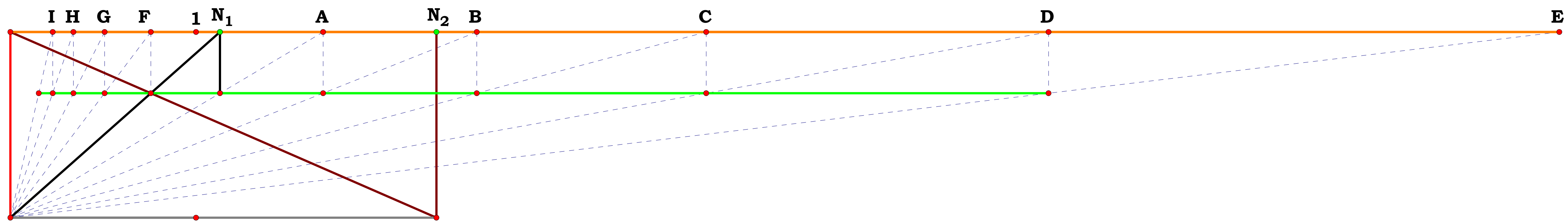
$$\frac{N_1}{N_1\text{-}N_2}^5\text{-}F_5 = 0.00000$$

$$\frac{N_1}{N_1\text{-}N_2}^6\text{-}F_6 = 0.00000$$

$$\frac{N_1}{N_1\text{-}N_2}^7\text{-}F_7 = 0.00000$$

$$\frac{N_1}{N_1\text{-}N_2}^8\text{-}F_8 = 0.00000$$





$N_1 = 1.12857$

$N_2 = 2.29441$

A = 1.68369
B = 2.51186
C = 3.74738
D = 5.59064
E = 8.34056
F = 0.75648
G = 0.50706
H = 0.33988
I = 0.22782

$N_1 \cdot \frac{N_1+N_2}{N_2}^{1} - A = 0.00000$

$N_1 \cdot \frac{N_1+N_2}{N_2}^{2} - B = 0.00000$

$N_1 \cdot \frac{N_1+N_2}{N_2}^{3} - C = 0.00000$

$N_1 \cdot \frac{N_1+N_2}{N_2}^{4} - D = 0.00000$

$N_1 \cdot \frac{N_1+N_2}{N_2}^{5} - E = 0.00000$

$N_1 \cdot \frac{N_1+N_2}{N_2}^{-1} - F = 0.00000$

$N_1 \cdot \frac{N_1+N_2}{N_2}^{-2} - G = 0.00000$

$N_1 \cdot \frac{N_1+N_2}{N_2}^{-3} - H = 0.00000$

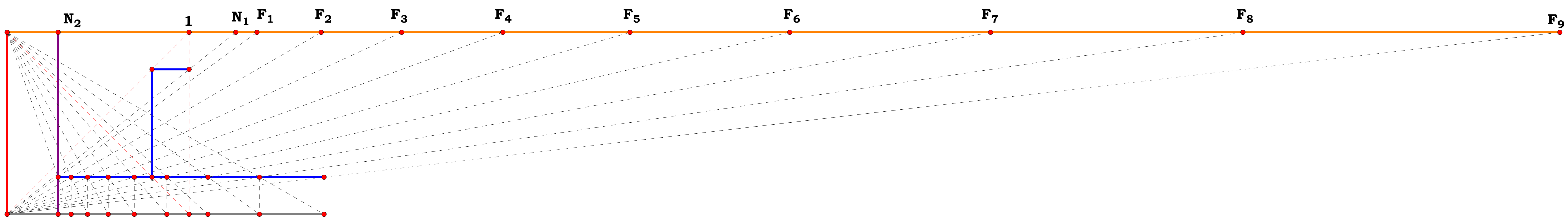
$N_1 \cdot \frac{N_1+N_2}{N_2}^{-4} - I = 0.00000$

$N_1 = 1.25654$
$N_2 = 0.28024$
$\dfrac{N_1 \cdot N_2}{N_1 - 1} = 1.37265$

$F_1 = 1.37265$
$F_2 = 1.72479$
$F_3 = 2.16726$
$F_4 = 2.72324$
$F_5 = 3.42185$
$F_6 = 4.29968$
$F_7 = 5.40271$
$F_8 = 6.78870$
$F_9 = 8.53025$

$\dfrac{N_1 \cdot N_2}{N_1 - 1} - F_1 = 0.00000$
$N_1 \cdot \dfrac{N_1 \cdot N_2}{N_1 - 1} - F_2 = 0.00000$
$N_1^2 \cdot \dfrac{N_1 \cdot N_2}{N_1 - 1} - F_3 = 0.00000$
$N_1^3 \cdot \dfrac{N_1 \cdot N_2}{N_1 - 1} - F_4 = 0.00000$
$N_1^4 \cdot \dfrac{N_1 \cdot N_2}{N_1 - 1} - F_5 = 0.00000$

$N_1^5 \cdot \dfrac{N_1 \cdot N_2}{N_1 - 1} - F_6 = 0.00000$
$N_1^6 \cdot \dfrac{N_1 \cdot N_2}{N_1 - 1} - F_7 = 0.00000$
$N_1^7 \cdot \dfrac{N_1 \cdot N_2}{N_1 - 1} - F_8 = 0.00000$
$N_1^8 \cdot \dfrac{N_1 \cdot N_2}{N_1 - 1} - F_9 = 0.00000$



$N_1 = 3.20361$

$N_2 = 2.68243$

$\frac{N_1}{N_1 - N_2} = 6.14677$

$\frac{N_1}{N_2} = 1.19430$

$F_1 = 6.14677$
$F_2 = 7.34107$
$F_3 = 8.76742$
$F_4 = 10.47089$
$F_5 = 12.50535$
$F_6 = 14.93509$
$F_7 = 17.83693$
$F_8 = 21.30258$
$F_9 = 25.44160$

$\frac{N_1}{N_2}^0 \cdot \frac{N_1}{N_1 - N_2} - F_1 = 0.00000$

$\frac{N_1}{N_2} \cdot \frac{N_1}{N_1 - N_2} - F_2 = 0.00000$

$\frac{N_1}{N_2}^2 \cdot \frac{N_1}{N_1 - N_2} - F_3 = 0.00000$

$\frac{N_1}{N_2}^3 \cdot \frac{N_1}{N_1 - N_2} - F_4 = 0.00000$

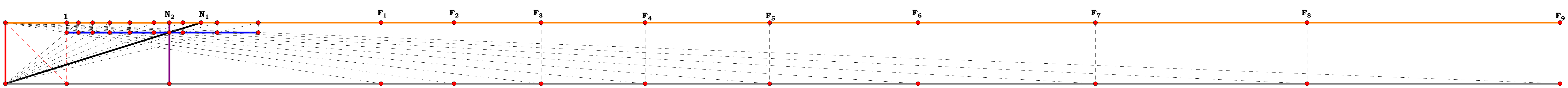
$\frac{N_1}{N_2}^4 \cdot \frac{N_1}{N_1 - N_2} - F_5 = 0.00000$

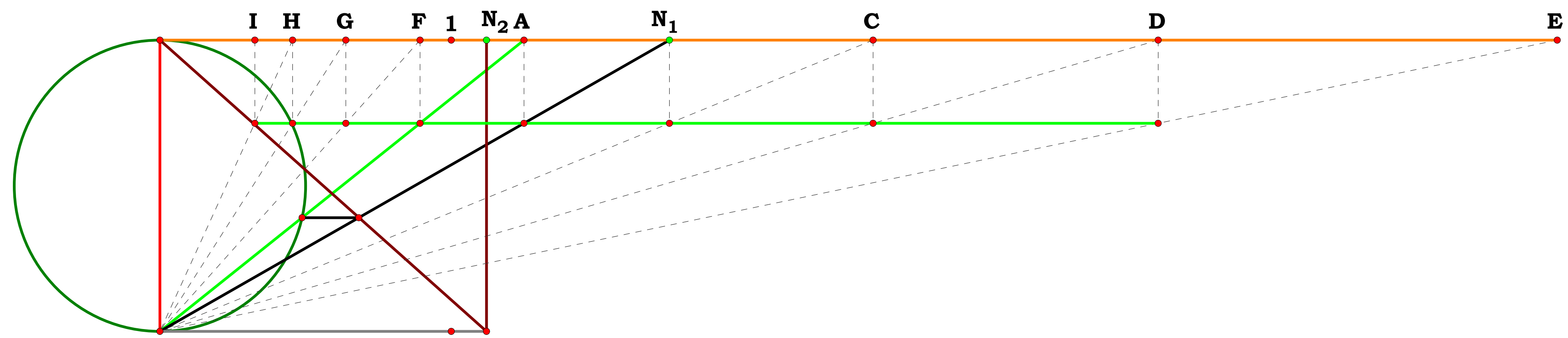
$\frac{N_1}{N_2}^5 \cdot \frac{N_1}{N_1 - N_2} - F_6 = 0.00000$

$\frac{N_1}{N_2}^6 \cdot \frac{N_1}{N_1 - N_2} - F_7 = 0.00000$

$\frac{N_1}{N_2}^7 \cdot \frac{N_1}{N_1 - N_2} - F_8 = 0.00000$

$\frac{N_1}{N_2}^8 \cdot \frac{N_1}{N_1 - N_2} - F_9 = 0.00000$





$$\sqrt{\frac{N_1}{N_2}} = 1.24930$$

$$\sqrt{N_1 \cdot N_2} = 1.39967$$

$$N_2 = 1.12036$$

$A = 1.24930$

$N_1 = 1.74861$

$C = 2.44748$

$D = 3.42566$

$E = 4.79479$

$$\sqrt{\frac{N_1}{N_2}} \cdot \sqrt{N_1 \cdot N_2}^0 - A = 0.00000$$

$$\sqrt{\frac{N_1}{N_2}} \cdot \sqrt{N_1 \cdot N_2}^1 - N_1 = 0.00000$$

$$\sqrt{\frac{N_1}{N_2}} \cdot \sqrt{N_1 \cdot N_2}^2 - C = 0.00000$$

$$\sqrt{\frac{N_1}{N_2}} \cdot \sqrt{N_1 \cdot N_2}^3 - D = 0.00000$$

$$\sqrt{\frac{N_1}{N_2}} \cdot \sqrt{N_1 \cdot N_2}^4 - E = 0.00000$$

$F = 0.89257$

$G = 0.63770$

$H = 0.45561$

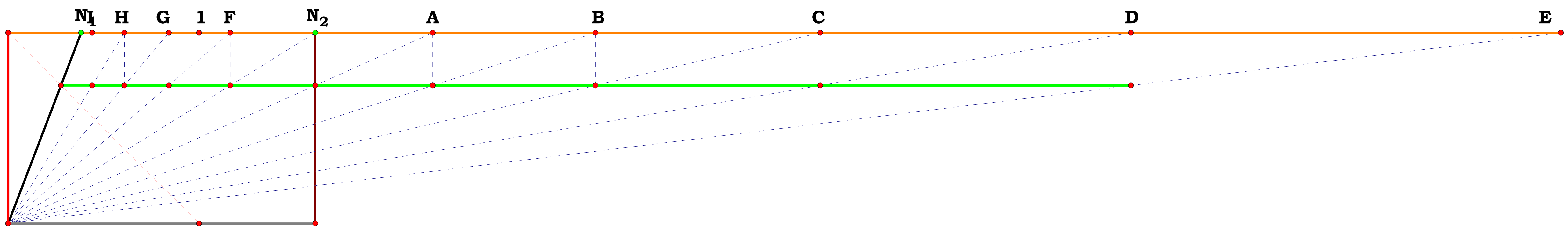
$I = 0.32551$

$$\sqrt{\frac{N_1}{N_2}} \cdot \sqrt{N_1 \cdot N_2}^{-1} - F = 0.00000$$

$$\sqrt{\frac{N_1}{N_2}} \cdot \sqrt{N_1 \cdot N_2}^{-2} - G = 0.00000$$

$$\sqrt{\frac{N_1}{N_2}} \cdot \sqrt{N_1 \cdot N_2}^{-3} - H = 0.00000$$

$$\sqrt{\frac{N_1}{N_2}} \cdot \sqrt{N_1 \cdot N_2}^{-4} - I = 0.00000$$



$N_1 = 0.38279$

$N_2 = 1.60857$

$A = 2.22432$

$B = 3.07576$

$C = 4.25313$

$D = 5.88118$

$E = 8.13244$

$F = 1.16328$

$G = 0.84126$

$H = 0.60838$

$I = 0.43996$

$N_2 \cdot (N_1+1)^1 - A = 0.00000$

$N_2 \cdot (N_1+1)^2 - B = 0.00000$

$N_2 \cdot (N_1+1)^3 - C = 0.00000$

$N_2 \cdot (N_1+1)^4 - D = 0.00000$

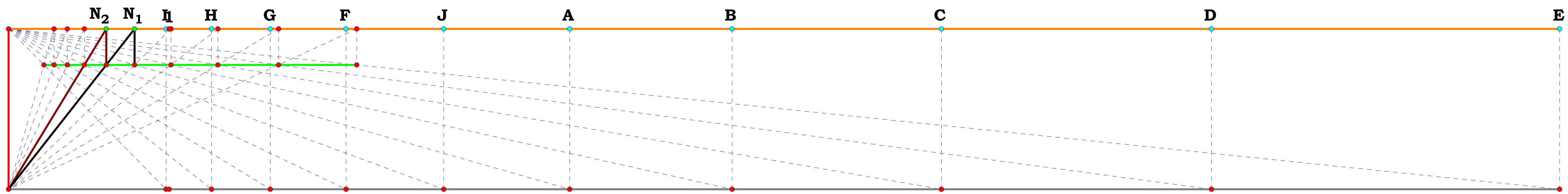
$N_2 \cdot (N_1+1)^5 - E = 0.00000$

$N_2 \cdot (N_1+1)^{-1} - F = 0.00000$

$N_2 \cdot (N_1+1)^{-2} - G = 0.00000$

$N_2 \cdot (N_1+1)^{-3} - H = 0.00000$

$N_2 \cdot (N_1+1)^{-4} - I = 0.00000$



$N_1 = 0.78415$

$N_2 = 0.60814$

$\frac{N_1}{N_2} = 1.28943$

$\frac{N_1 \cdot N_2}{N_1 - N_2} = 2.70928$

J = 2.70928

A = 3.49343

B = 4.50454

C = 5.80830

D = 7.48941

E = 9.65708

F = 2.10114

G = 1.62951

H = 1.26374

I = 0.98008

$$\frac{N_1}{N_2}^{0} \cdot \frac{N_1 \cdot N_2}{N_1 - N_2} - J = 0.00000$$

$$\frac{N_1}{N_2}^{1} \cdot \frac{N_1 \cdot N_2}{N_1 - N_2} - A = 0.00000$$

$$\frac{N_1}{N_2}^{2} \cdot \frac{N_1 \cdot N_2}{N_1 - N_2} - B = 0.00000$$

$$\frac{N_1}{N_2}^{3} \cdot \frac{N_1 \cdot N_2}{N_1 - N_2} - C = 0.00000$$

$$\frac{N_1}{N_2}^{4} \cdot \frac{N_1 \cdot N_2}{N_1 - N_2} - D = 0.00000$$

$$\frac{N_1}{N_2}^{5} \cdot \frac{N_1 \cdot N_2}{N_1 - N_2} - E = 0.00000$$

$$\frac{N_1}{N_2}^{-1} \cdot \frac{N_1 \cdot N_2}{N_1 - N_2} - F = 0.00000$$

$$\frac{N_1}{N_2}^{-2} \cdot \frac{N_1 \cdot N_2}{N_1 - N_2} - G = 0.00000$$

$$\frac{N_1}{N_2}^{-3} \cdot \frac{N_1 \cdot N_2}{N_1 - N_2} - H = 0.00000$$

$$\frac{N_1}{N_2}^{-4} \cdot \frac{N_1 \cdot N_2}{N_1 - N_2} - I = 0.00000$$

$$\frac{N_1 \cdot N_2}{N_1 - N_2} - J = 0.00000$$

$$\frac{N_1^2}{N_1 - N_2} - A = 0.00000$$

$$\frac{N_1^3}{N_1 \cdot N_2 - N_2^2} - B = 0.00000$$

$$\frac{N_1^4}{N_1 \cdot N_2^2 - N_2^3} - C = 0.00000$$

$$\frac{N_1^5}{N_1 \cdot N_2^3 - N_2^4} - D = 0.00000$$

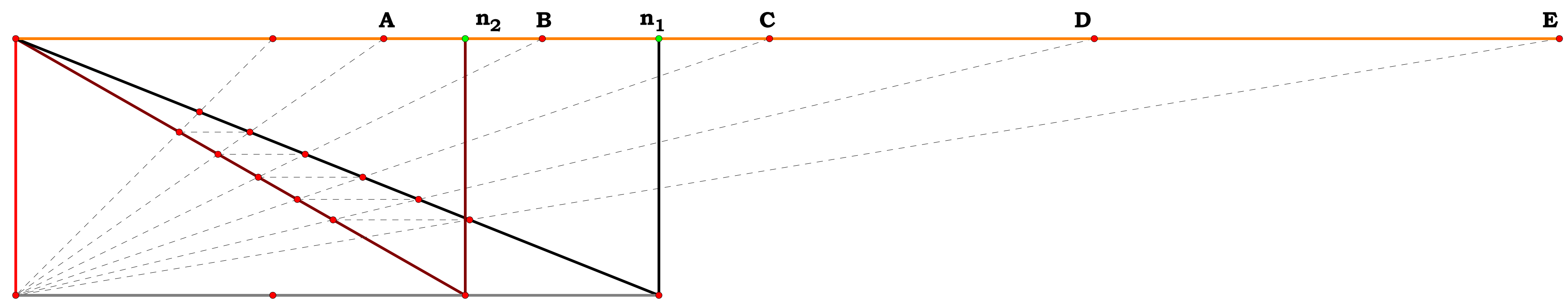
$$\frac{N_1^6}{N_1 \cdot N_2^4 - N_2^5} - E = 0.00000$$

$$\frac{N_2^2}{N_1 - N_2} - F = 0.00000$$

$$\frac{N_2^3}{N_1^2 - N_1 \cdot N_2} - G = 0.00000$$

$$\frac{N_2^4}{N_1^3 - N_1^2 \cdot N_2} - H = 0.00000$$

$$\frac{N_2^5}{N_1^4 - N_1^3 \cdot N_2} - I = 0.00000$$



A = 1.43109

B = 2.04801

C = 2.93088

D = 4.19435

E = 6.00248

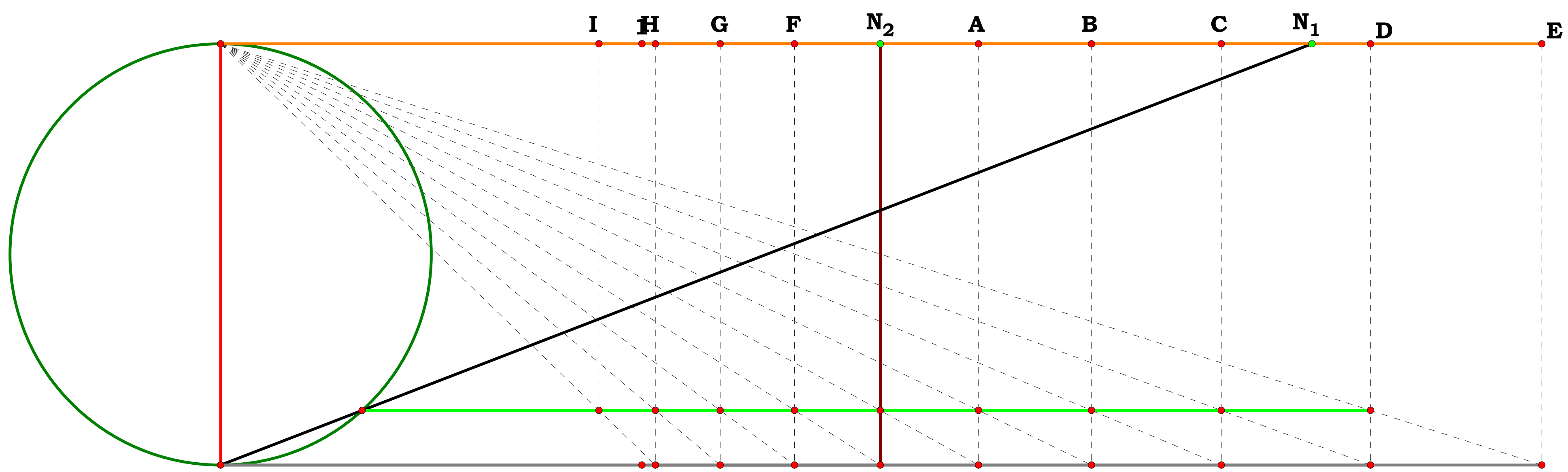
$$\frac{N_1}{N_2} - A = 0.00000$$

$$\frac{N_1^{\,2}}{N_2} - B = 0.00000$$

$$\frac{N_1^{\,3}}{N_2} - C = 0.00000$$

$$\frac{N_1^{\,4}}{N_2} - D = 0.00000$$

$$\frac{N_1^{\,5}}{N_2} - E = 0.00000$$



$$\frac{N_1^2+1}{N_1^2} = 1.14908$$

$$\frac{N_2\cdot(N_1^2+1)}{N_1^2} = 1.79864$$

$N_1 = 2.58997$

$N_2 = 1.56529$

A = 1.79864
B = 2.06677
C = 2.37488
D = 2.72892
E = 3.13573

$$\frac{N_2\cdot(N_1^2+1)}{N_1^2}\cdot\frac{N_1^2+1}{N_1^2}^{0}-A = 0.00000$$

$$\frac{N_2\cdot(N_1^2+1)}{N_1^2}\cdot\frac{N_1^2+1}{N_1^2}^{1}-B = 0.00000$$

$$\frac{N_2\cdot(N_1^2+1)}{N_1^2}\cdot\frac{N_1^2+1}{N_1^2}^{2}-C = 0.00000$$

$$\frac{N_2\cdot(N_1^2+1)}{N_1^2}\cdot\frac{N_1^2+1}{N_1^2}^{3}-D = 0.00000$$

$$\frac{N_2\cdot(N_1^2+1)}{N_1^2}\cdot\frac{N_1^2+1}{N_1^2}^{4}-E = 0.00000$$

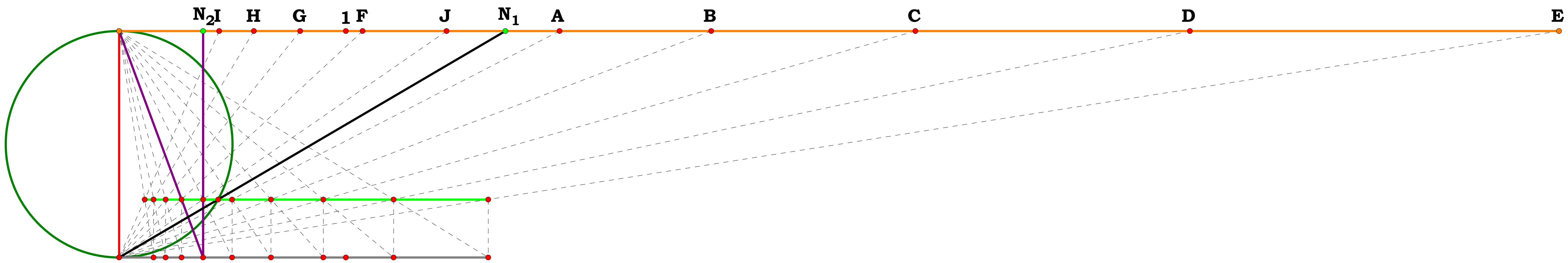
F = 1.36221
G = 1.18549
H = 1.03169
I = 0.89784

$$\frac{N_2\cdot(N_1^2+1)}{N_1^2}\cdot\frac{N_1^2+1}{N_1^2}^{-2}-F = 0.00000$$

$$\frac{N_2\cdot(N_1^2+1)}{N_1^2}\cdot\frac{N_1^2+1}{N_1^2}^{-3}-G = 0.00000$$

$$\frac{N_2\cdot(N_1^2+1)}{N_1^2}\cdot\frac{N_1^2+1}{N_1^2}^{-4}-H = 0.00000$$

$$\frac{N_2\cdot(N_1^2+1)}{N_1^2}\cdot\frac{N_1^2+1}{N_1^2}^{-5}-I = 0.00000$$



$N_2 \cdot (N_1^2+1) = 1.44391$

$\frac{N_1^2+1}{N_1^2} = 1.34470$

$N_1 = 1.70325$

$N_2 = 0.37013$

A = 1.94163
B = 2.61092
C = 3.51090
D = 4.72112
E = 6.34849

$(N_2 \cdot (N_1^2+1)) \cdot \frac{N_1^2+1}{N_1^2}^{1} - A = 0.00000$

$(N_2 \cdot (N_1^2+1)) \cdot \frac{N_1^2+1}{N_1^2}^{2} - B = 0.00000$

$(N_2 \cdot (N_1^2+1)) \cdot \frac{N_1^2+1}{N_1^2}^{3} - C = 0.00000$

$(N_2 \cdot (N_1^2+1)) \cdot \frac{N_1^2+1}{N_1^2}^{4} - D = 0.00000$

$(N_2 \cdot (N_1^2+1)) \cdot \frac{N_1^2+1}{N_1^2}^{5} - E = 0.00000$

J = 1.44391
F = 1.07378
G = 0.79853
H = 0.59383
I = 0.44161

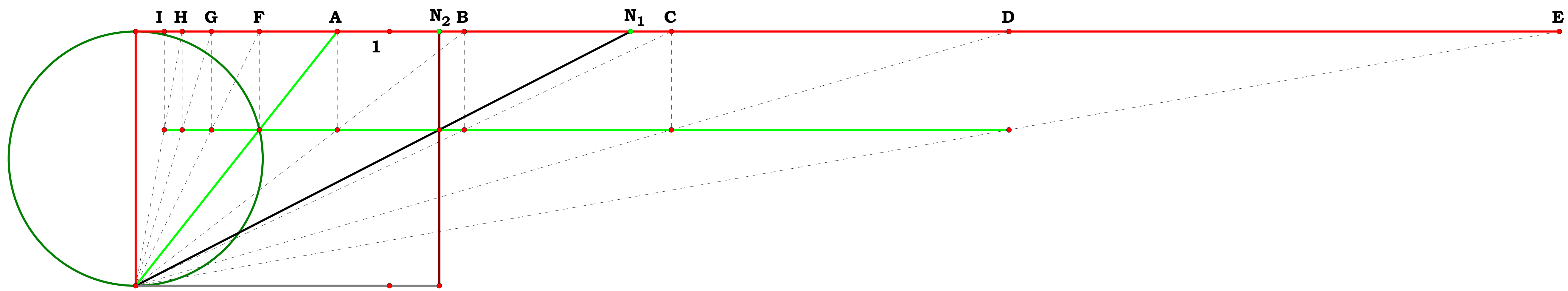
$(N_2 \cdot (N_1^2+1)) \cdot \frac{N_1^2+1}{N_1^2}^{0} - J = 0.00000$

$(N_2 \cdot (N_1^2+1)) \cdot \frac{N_1^2+1}{N_1^2}^{-1} - F = 0.00000$

$(N_2 \cdot (N_1^2+1)) \cdot \frac{N_1^2+1}{N_1^2}^{-2} - G = 0.00000$

$(N_2 \cdot (N_1^2+1)) \cdot \frac{N_1^2+1}{N_1^2}^{-3} - H = 0.00000$

$(N_2 \cdot (N_1^2+1)) \cdot \frac{N_1^2+1}{N_1^2}^{-4} - I = 0.00000$



$$\frac{N_1}{N_2} = 1.63024$$

$$\sqrt{\frac{N_1 - N_2}{N_2}} = 0.79388$$

$N_1 = 1.94939$

$N_2 = 1.19577$

A = 0.79388

B = 1.29421

C = 2.10988

D = 3.43962

E = 5.60741

$$\sqrt{\frac{N_1 - N_2}{N_2}} \cdot \frac{N_1}{N_2}^0 - A = 0.00000$$

$$\sqrt{\frac{N_1 - N_2}{N_2}} \cdot \frac{N_1}{N_2}^1 - B = 0.00000$$

$$\sqrt{\frac{N_1 - N_2}{N_2}} \cdot \frac{N_1}{N_2}^2 - C = 0.00000$$

$$\sqrt{\frac{N_1 - N_2}{N_2}} \cdot \frac{N_1}{N_2}^3 - D = 0.00000$$

$$\sqrt{\frac{N_1 - N_2}{N_2}} \cdot \frac{N_1}{N_2}^4 - E = 0.00000$$

F = 0.48697

G = 0.29871

H = 0.18323

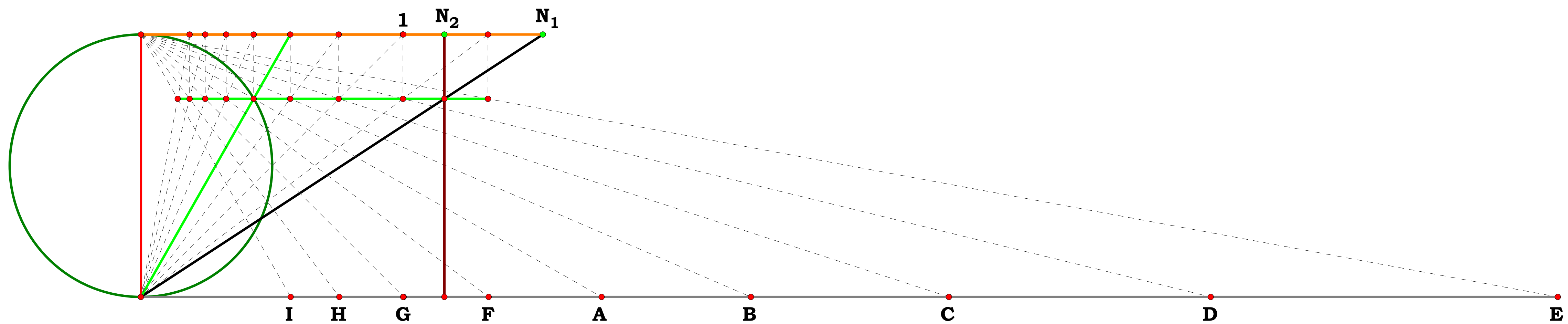
I = 0.11239

$$\sqrt{\frac{N_1 - N_2}{N_2}} \cdot \frac{N_1}{N_2}^{-1} - F = 0.00000$$

$$\sqrt{\frac{N_1 - N_2}{N_2}} \cdot \frac{N_1}{N_2}^{-2} - G = 0.00000$$

$$\sqrt{\frac{N_1 - N_2}{N_2}} \cdot \frac{N_1}{N_2}^{-3} - H = 0.00000$$

$$\sqrt{\frac{N_1 - N_2}{N_2}} \cdot \frac{N_1}{N_2}^{-4} - I = 0.00000$$



$$\sqrt{\frac{N_2}{N_1-N_2}} = 1.75589$$

$$\frac{N_1}{N_2} = 1.32434$$

$N_1 = 1.53175$

$N_2 = 1.15661$

A = 1.75589
B = 2.32540
C = 3.07963
D = 4.07849
E = 5.40133

$$\sqrt{\frac{N_2}{N_1-N_2}}\cdot\frac{N_1}{N_2}^{0} - A = 0.00000$$

$$\sqrt{\frac{N_2}{N_1-N_2}}\cdot\frac{N_1}{N_2}^{1} - B = 0.00000$$

$$\sqrt{\frac{N_2}{N_1-N_2}}\cdot\frac{N_1}{N_2}^{2} - C = 0.00000$$

$$\sqrt{\frac{N_2}{N_1-N_2}}\cdot\frac{N_1}{N_2}^{3} - D = 0.00000$$

$$\sqrt{\frac{N_2}{N_1-N_2}}\cdot\frac{N_1}{N_2}^{4} - E = 0.00000$$

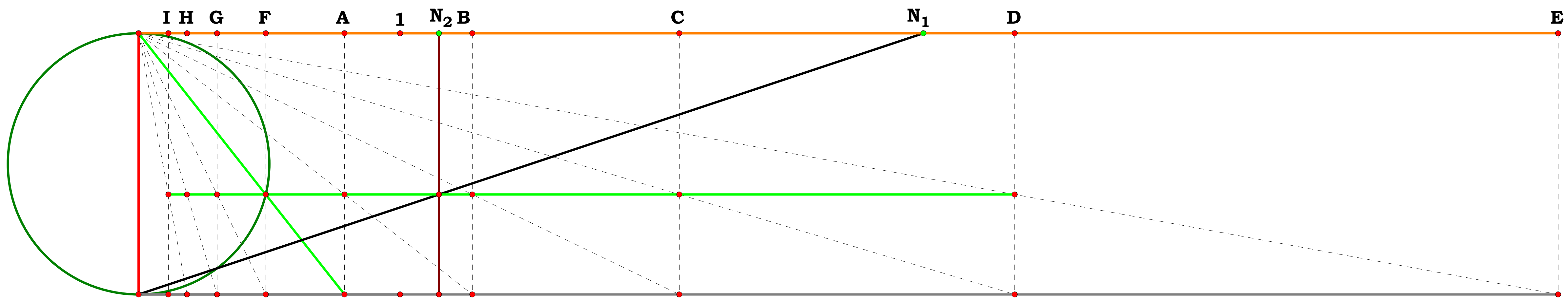
F = 1.32585
G = 1.00114
H = 0.75595
I = 0.57081

$$\sqrt{\frac{N_2}{N_1-N_2}}\cdot\frac{N_1}{N_2}^{-1} - F = 0.00000$$

$$\sqrt{\frac{N_2}{N_1-N_2}}\cdot\frac{N_1}{N_2}^{-2} - G = 0.00000$$

$$\sqrt{\frac{N_2}{N_1-N_2}}\cdot\frac{N_1}{N_2}^{-3} - H = 0.00000$$

$$\sqrt{\frac{N_2}{N_1-N_2}}\cdot\frac{N_1}{N_2}^{-4} - I = 0.00000$$



$$\sqrt{\frac{N_2}{N_1-N_2}} = 0.78754$$

$$\frac{N_1}{N_1-N_2} = 1.62022$$

$N_1 = 3.00000$

$N_2 = 1.14840$

A = 0.78754
B = 1.27600
C = 2.06740
D = 3.34965
E = 5.42718

$$\sqrt{\frac{N_2}{N_1-N_2}}\cdot\frac{N_1}{N_1-N_2}^{0} - A = 0.00000$$

$$\sqrt{\frac{N_2}{N_1-N_2}}\cdot\frac{N_1}{N_1-N_2}^{1} - B = 0.00000$$

$$\sqrt{\frac{N_2}{N_1-N_2}}\cdot\frac{N_1}{N_1-N_2}^{2} - C = 0.00000$$

$$\sqrt{\frac{N_2}{N_1-N_2}}\cdot\frac{N_1}{N_1-N_2}^{3} - D = 0.00000$$

$$\sqrt{\frac{N_2}{N_1-N_2}}\cdot\frac{N_1}{N_1-N_2}^{4} - E = 0.00000$$

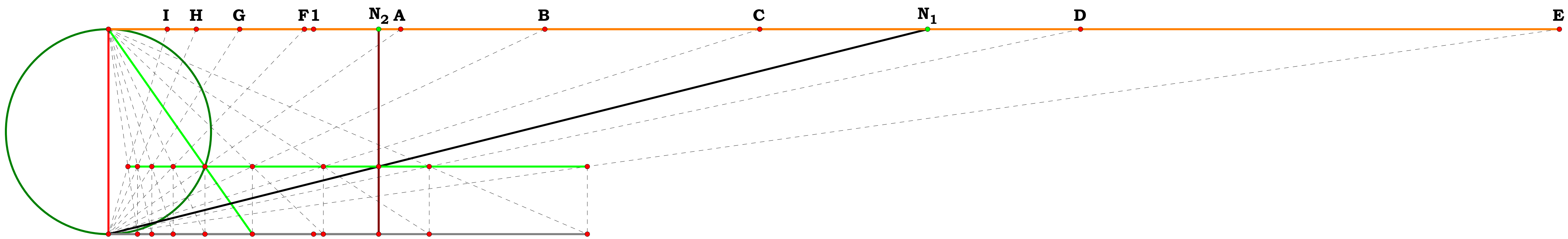
F = 0.48607
G = 0.30000
H = 0.18516
I = 0.11428

$$\sqrt{\frac{N_2}{N_1-N_2}}\cdot\frac{N_1}{N_1-N_2}^{-1} - F = 0.00000$$

$$\sqrt{\frac{N_2}{N_1-N_2}}\cdot\frac{N_1}{N_1-N_2}^{-2} - G = 0.00000$$

$$\sqrt{\frac{N_2}{N_1-N_2}}\cdot\frac{N_1}{N_1-N_2}^{-3} - H = 0.00000$$

$$\sqrt{\frac{N_2}{N_1-N_2}}\cdot\frac{N_1}{N_1-N_2}^{-4} - I = 0.00000$$



$$\sqrt{\frac{N_1\text{-}N_2}{N_2}} = 1.42482$$

$$\frac{N_1}{N_1\text{-}N_2} = 1.49258$$

$N_1 = 3.99177$

$N_2 = 1.31737$

A = 1.42482

B = 2.12666

C = 3.17422

D = 4.73779

E = 7.07155

$$\sqrt{\frac{N_1\text{-}N_2}{N_2}}\cdot\frac{N_1}{N_1\text{-}N_2}^{0}\text{-A} = 0.00000$$

$$\sqrt{\frac{N_1\text{-}N_2}{N_2}}\cdot\frac{N_1}{N_1\text{-}N_2}^{1}\text{-B} = 0.00000$$

$$\sqrt{\frac{N_1\text{-}N_2}{N_2}}\cdot\frac{N_1}{N_1\text{-}N_2}^{2}\text{-C} = 0.00000$$

$$\sqrt{\frac{N_1\text{-}N_2}{N_2}}\cdot\frac{N_1}{N_1\text{-}N_2}^{3}\text{-D} = 0.00000$$

$$\sqrt{\frac{N_1\text{-}N_2}{N_2}}\cdot\frac{N_1}{N_1\text{-}N_2}^{4}\text{-E} = 0.00000$$

F = 0.95460

G = 0.63956

H = 0.42849

I = 0.28708

$$\sqrt{\frac{N_1\text{-}N_2}{N_2}}\cdot\frac{N_1}{N_1\text{-}N_2}^{-1}\text{-F} = 0.00000$$

$$\sqrt{\frac{N_1\text{-}N_2}{N_2}}\cdot\frac{N_1}{N_1\text{-}N_2}^{-2}\text{-G} = 0.00000$$

$$\sqrt{\frac{N_1\text{-}N_2}{N_2}}\cdot\frac{N_1}{N_1\text{-}N_2}^{-3}\text{-H} = 0.00000$$

$$\sqrt{\frac{N_1\text{-}N_2}{N_2}}\cdot\frac{N_1}{N_1\text{-}N_2}^{-4}\text{-I} = 0.00000$$

$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2} = 0.83725$$

$$\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1} = 1.12397$$

A = 0.83725
B = 0.94105
C = 1.05771
D = 1.18884
E = 1.33622

F = 0.74490
G = 0.66274
H = 0.58964
I = 0.52461

$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2}\cdot{\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1}}^{0} - A = 0.00000$$

$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2}\cdot{\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1}}^{1} - B = 0.00000$$

$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2}\cdot{\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1}}^{2} - C = 0.00000$$

$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2}\cdot{\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1}}^{3} - D = 0.00000$$

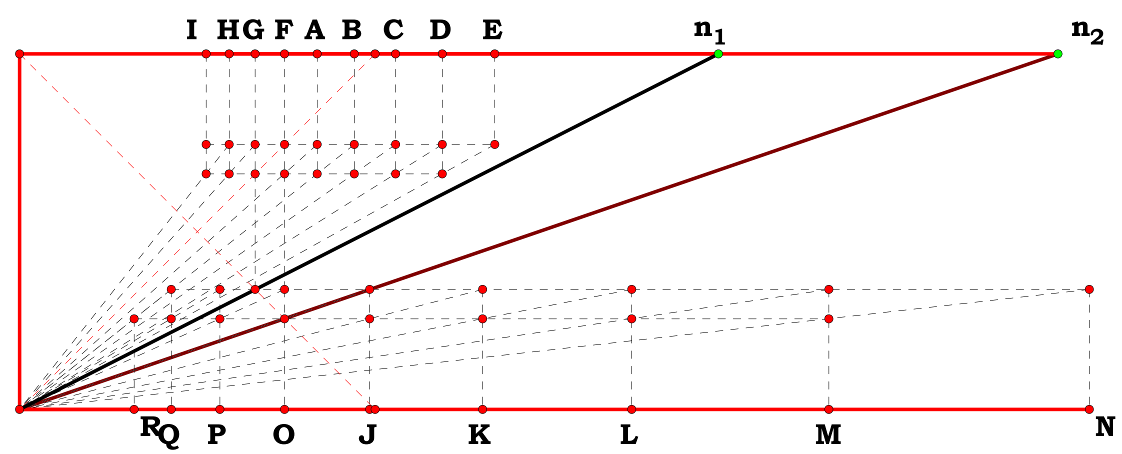
$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2}\cdot{\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1}}^{4} - E = 0.00000$$

$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2}\cdot{\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1}}^{-1} - F = 0.00000$$

$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2}\cdot{\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1}}^{-2} - G = 0.00000$$

$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2}\cdot{\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1}}^{-3} - H = 0.00000$$

$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2}\cdot{\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1}}^{-4} - I = 0.00000$$



$$\frac{N_2}{N_1+1} = 0.98482$$

$$\frac{N_2+1}{N_1+1} = 1.32208$$

N_1 = 1.96510
N_2 = 2.92011

J = 0.98482
K = 1.30202
L = 1.72138
M = 2.27580
N = 3.00879

O = 0.74490
P = 0.56343
Q = 0.42617
R = 0.32235

$$\frac{N_2}{N_1+1}\cdot{\frac{N_2+1}{N_1+1}}^{0} - J = 0.00000$$

$$\frac{N_2}{N_1+1}\cdot{\frac{N_2+1}{N_1+1}}^{1} - K = 0.00000$$

$$\frac{N_2}{N_1+1}\cdot{\frac{N_2+1}{N_1+1}}^{2} - L = 0.00000$$

$$\frac{N_2}{N_1+1}\cdot{\frac{N_2+1}{N_1+1}}^{3} - M = 0.00000$$

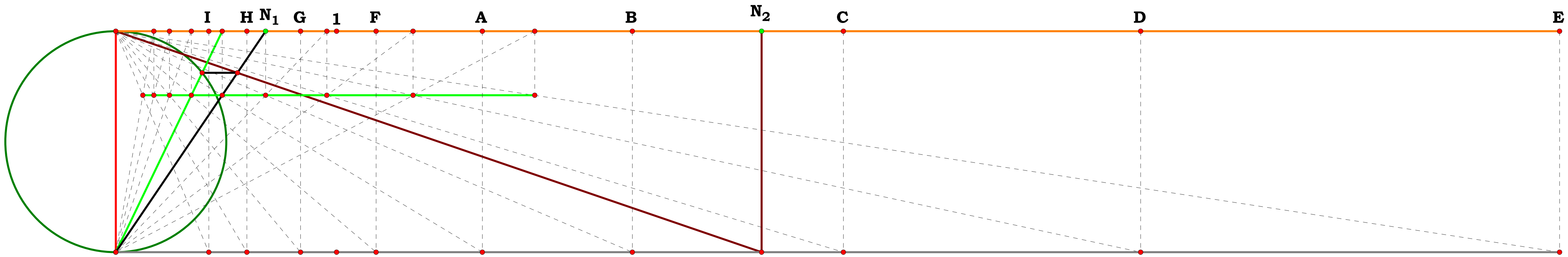
$$\frac{N_2}{N_1+1}\cdot{\frac{N_2+1}{N_1+1}}^{4} - N = 0.00000$$

$$\frac{N_2}{N_1+1}\cdot{\frac{N_2+1}{N_1+1}}^{-1} - O = 0.00000$$

$$\frac{N_2}{N_1+1}\cdot{\frac{N_2+1}{N_1+1}}^{-2} - P = 0.00000$$

$$\frac{N_2}{N_1+1}\cdot{\frac{N_2+1}{N_1+1}}^{-3} - Q = 0.00000$$

$$\frac{N_2}{N_1+1}\cdot{\frac{N_2+1}{N_1+1}}^{-4} - R = 0.00000$$



$$\frac{N_1}{\sqrt{N_1 \cdot N_2 - 1}} = 1.66035$$

$$\sqrt{N_1 \cdot N_2} = 1.40869$$

$N_1 = 0.67856$

$N_2 = 2.92441$

A = 1.66035
B = 2.33892
C = 3.29480
D = 4.64135
E = 6.53820

$$\frac{N_1}{\sqrt{N_1 \cdot N_2 - 1}} \cdot \sqrt{N_1 \cdot N_2}^0 - A = 0.00000$$

$$\frac{N_1}{\sqrt{N_1 \cdot N_2 - 1}} \cdot \sqrt{N_1 \cdot N_2}^1 - B = 0.00000$$

$$\frac{N_1}{\sqrt{N_1 \cdot N_2 - 1}} \cdot \sqrt{N_1 \cdot N_2}^2 - C = 0.00000$$

$$\frac{N_1}{\sqrt{N_1 \cdot N_2 - 1}} \cdot \sqrt{N_1 \cdot N_2}^3 - D = 0.00000$$

$$\frac{N_1}{\sqrt{N_1 \cdot N_2 - 1}} \cdot \sqrt{N_1 \cdot N_2}^4 - E = 0.00000$$

F = 1.17865
G = 0.83670
H = 0.59396
I = 0.42164

$$\frac{N_1}{\sqrt{N_1 \cdot N_2 - 1}} \cdot \sqrt{N_1 \cdot N_2}^{-1} - F = 0.00000$$

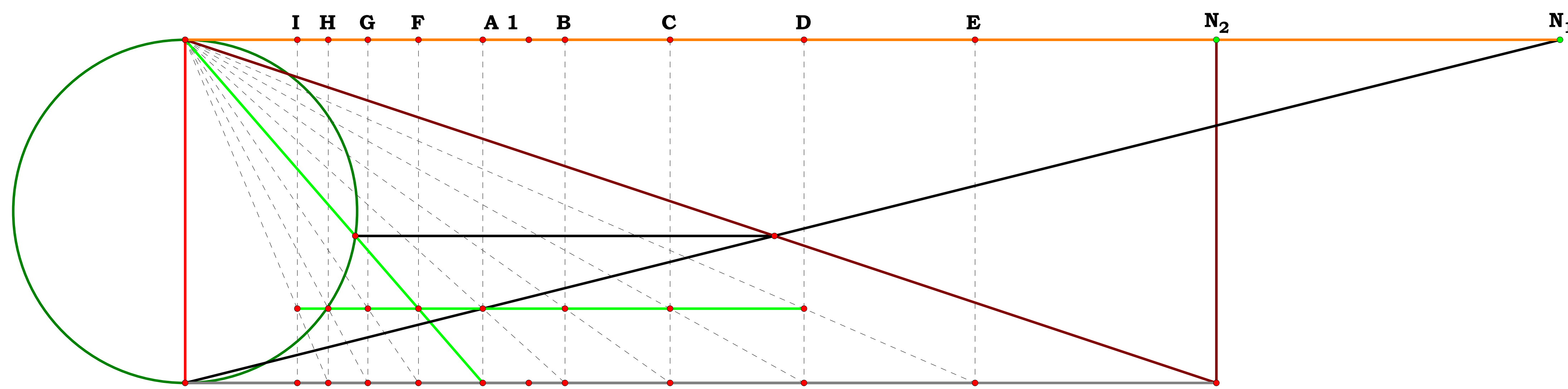
$$\frac{N_1}{\sqrt{N_1 \cdot N_2 - 1}} \cdot \sqrt{N_1 \cdot N_2}^{-2} - G = 0.00000$$

$$\frac{N_1}{\sqrt{N_1 \cdot N_2 - 1}} \cdot \sqrt{N_1 \cdot N_2}^{-3} - H = 0.00000$$

$$\frac{N_1}{\sqrt{N_1 \cdot N_2 - 1}} \cdot \sqrt{N_1 \cdot N_2}^{-4} - I = 0.00000$$

N[1] -> 0
N[1] -> 1
N[1] -> 2

N[1] -> 3
N[1] -> 4
N[1] -> 5
N[1] -> 6
N[1] -> 7
N[1] -> 8
N[1] -> 9
N[1] -> 10
N[1] -> 11
N[2] -> 0
N[2] -> 1
N[2] -> 2
N[2] -> 3
N[2] -> 4
N[2] -> 5
N[2] -> 6
N[2] -> 7
N[2] -> 8
N[2] -> 9
N[2] -> 10
N[2] -> 11
Hide Action Buttons



$$\sqrt{\frac{N_2}{N_1}} = 0.86603$$

$$\frac{B}{A} = 1.27633$$

$N_1 = 4.00000$

$N_2 = 3.00000$

$$\frac{N_2}{N_1} = 0.75000$$

A = 0.86603
B = 1.10534
C = 1.41078
D = 1.80063
E = 2.29820

$$\sqrt{\frac{N_2}{N_1}} - A = 0.00000$$

$$\sqrt{\frac{N_2}{N_1}} \cdot \frac{B}{A} - B = 0.00000$$

$$\sqrt{\frac{N_2}{N_1}} \cdot \frac{B}{A}^2 - C = 0.00000$$

$$\sqrt{\frac{N_2}{N_1}} \cdot \frac{B}{A}^3 - D = 0.00000$$

$$\sqrt{\frac{N_2}{N_1}} \cdot \frac{B}{A}^4 - E = 0.00000$$

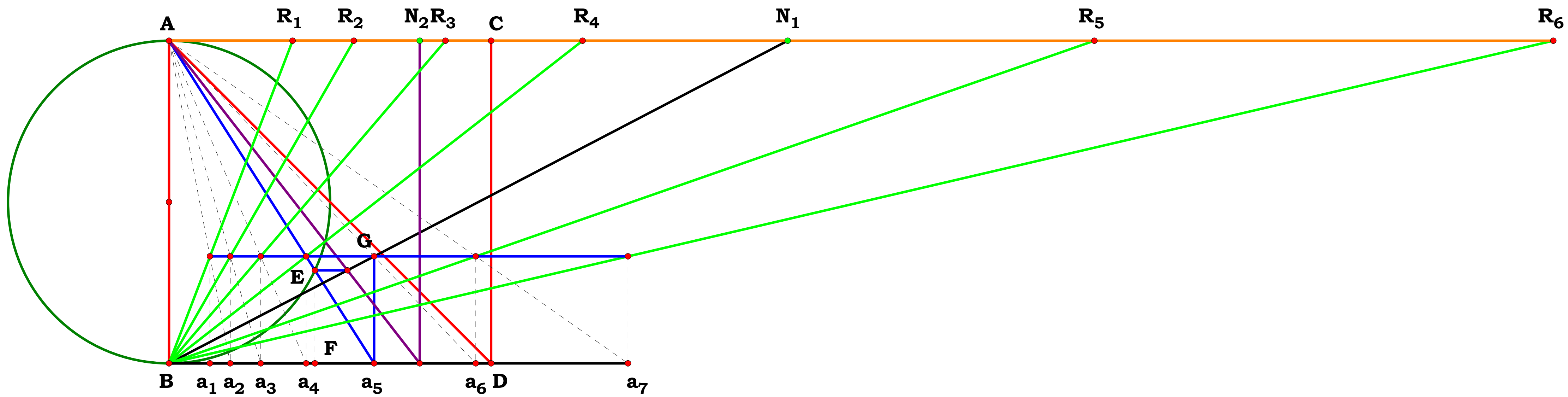
F = 0.67853
G = 0.53162
H = 0.41652
I = 0.32634

$$\sqrt{\frac{N_2}{N_1}} \cdot \frac{B}{A}^{-1} - F = 0.00000$$

$$\sqrt{\frac{N_2}{N_1}} \cdot \frac{B}{A}^{-2} - G = 0.00000$$

$$\sqrt{\frac{N_2}{N_1}} \cdot \frac{B}{A}^{-3} - H = 0.00000$$

$$\sqrt{\frac{N_2}{N_1}} \cdot \frac{B}{A}^{-4} - I = 0.00000$$



$N_1 = 1.92028$

$N_2 = 0.77822$

$R_1 = 0.38347$

$R_2 = 0.57364$

$R_3 = 0.85812$

$R_4 = 1.28368$

$R_5 = 2.87259$

$R_6 = 4.29718$

$$\frac{N_1^2}{N_1^2-\sqrt{N_1 \cdot N_2}} = 1.49592$$

$$R_1 - N_1 \cdot \left(\frac{N_1^2}{N_1^2-\sqrt{N_1 \cdot N_2}}\right)^{-4} = 0.00000$$

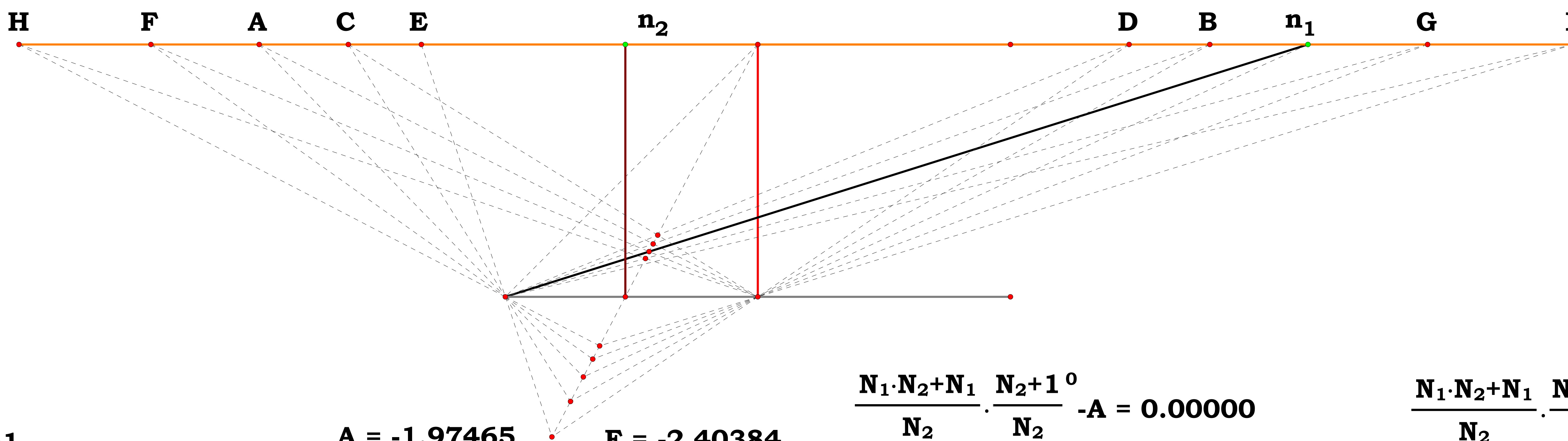
$$R_2 - N_1 \cdot \left(\frac{N_1^2}{N_1^2-\sqrt{N_1 \cdot N_2}}\right)^{-3} = 0.00000$$

$$R_3 - N_1 \cdot \left(\frac{N_1^2}{N_1^2-\sqrt{N_1 \cdot N_2}}\right)^{-2} = 0.00000$$

$$R_4 - N_1 \cdot \left(\frac{N_1^2}{N_1^2-\sqrt{N_1 \cdot N_2}}\right)^{-1} = 0.00000$$

$$R_5 - N_1 \cdot \frac{N_1^2}{N_1^2-\sqrt{N_1 \cdot N_2}} = 0.00000$$

$$R_6 - N_1 \cdot \left(\frac{N_1^2}{N_1^2-\sqrt{N_1 \cdot N_2}}\right)^{2} = 0.00000$$



$$\frac{N_2+1}{N_2} = -0.90634$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} = -1.97465$$

$N_1 = 2.17870$

$N_2 = -0.52456$

A = -1.97465

B = 1.78970

C = -1.62208

D = 1.47016

E = -1.33247

F = -2.40384

G = 2.65225

H = -2.92632

I = 3.22872

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{0} - A = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{1} - B = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{2} - C = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{3} - D = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{4} - E = 0.00000$$

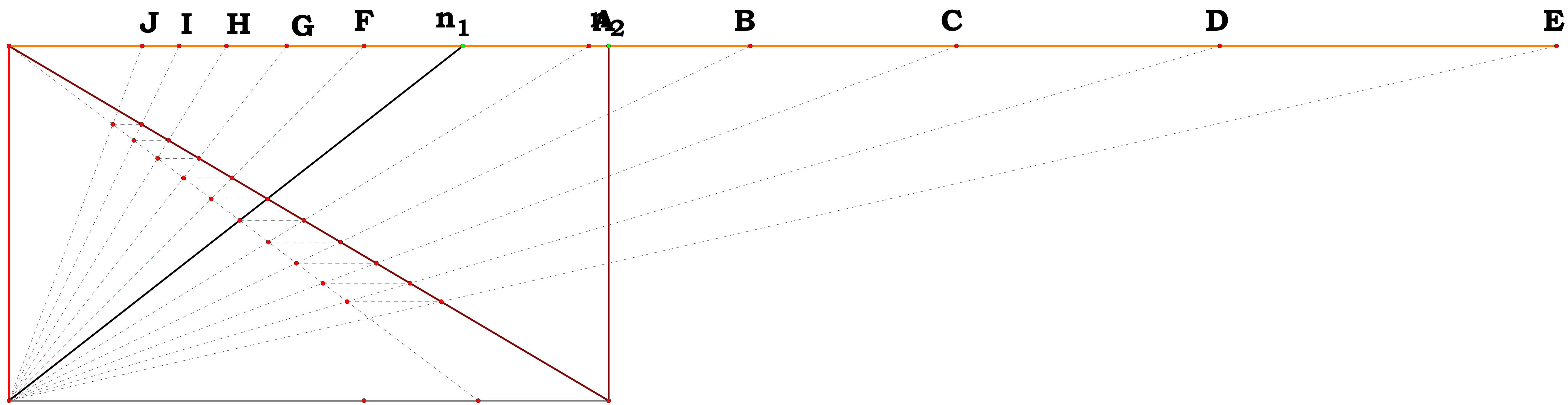
$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{-1} - N_1 = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{-2} - F = 0.00000$$

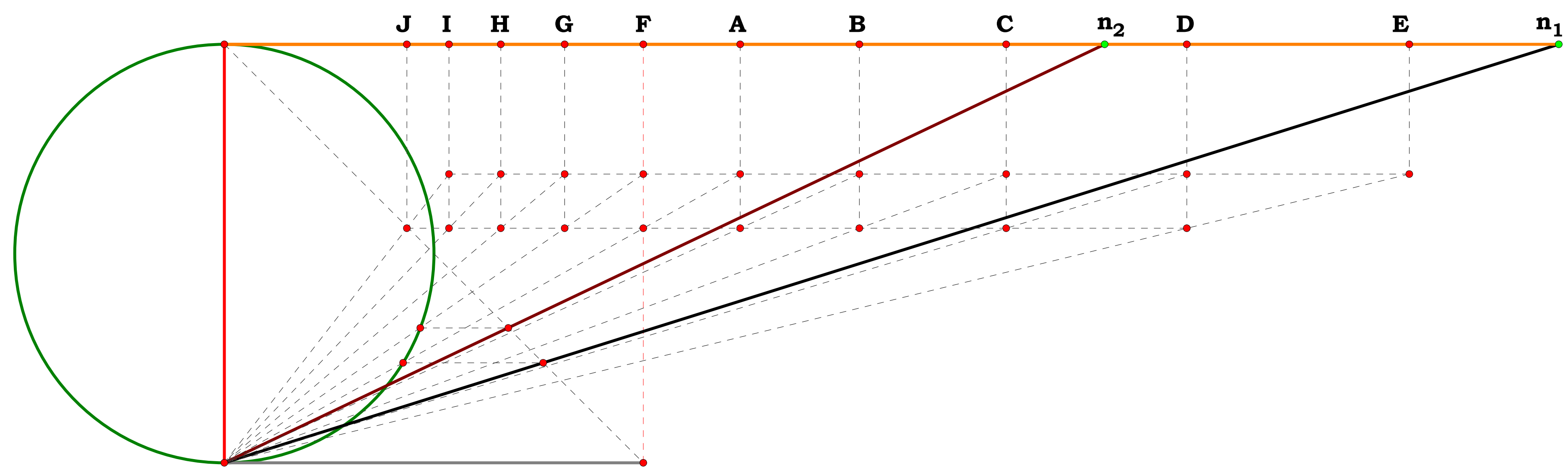
$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{-3} - G = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{-4} - H = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{-5} - I = 0.00000$$



	A = 1.63353	F = 1.00000	N_1^2-A = 0.00000	N_1^0-F = 0.00000
N_1 = 1.27809	B = 2.08780	G = 0.78241	N_1^3-B = 0.00000	N_1^{-1}-G = 0.00000
N_2 = 1.68896	C = 2.66841	H = 0.61217	N_1^4-C = 0.00000	N_1^{-2}-H = 0.00000
	D = 3.41048	I = 0.47897	N_1^5-D = 0.00000	N_1^{-3}-I = 0.00000
	E = 4.35891	J = 0.37476	N_1^6-E = 0.00000	N_1^{-4}-J = 0.00000



$$\frac{\sqrt{N_1}}{\sqrt{N_2}} = 1.23112$$

$N_1 = 3.18458$

$N_2 = 2.10112$

A = 1.23112
B = 1.51566
C = 1.86597
D = 2.29723
E = 2.82817

F = 1.00000
G = 0.81227
H = 0.65978
I = 0.53592
J = 0.43531

$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{1} - A = 0.00000$$

$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{2} - B = 0.00000$$

$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{3} - C = 0.00000$$

$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{4} - D = 0.00000$$

$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{5} - E = 0.00000$$

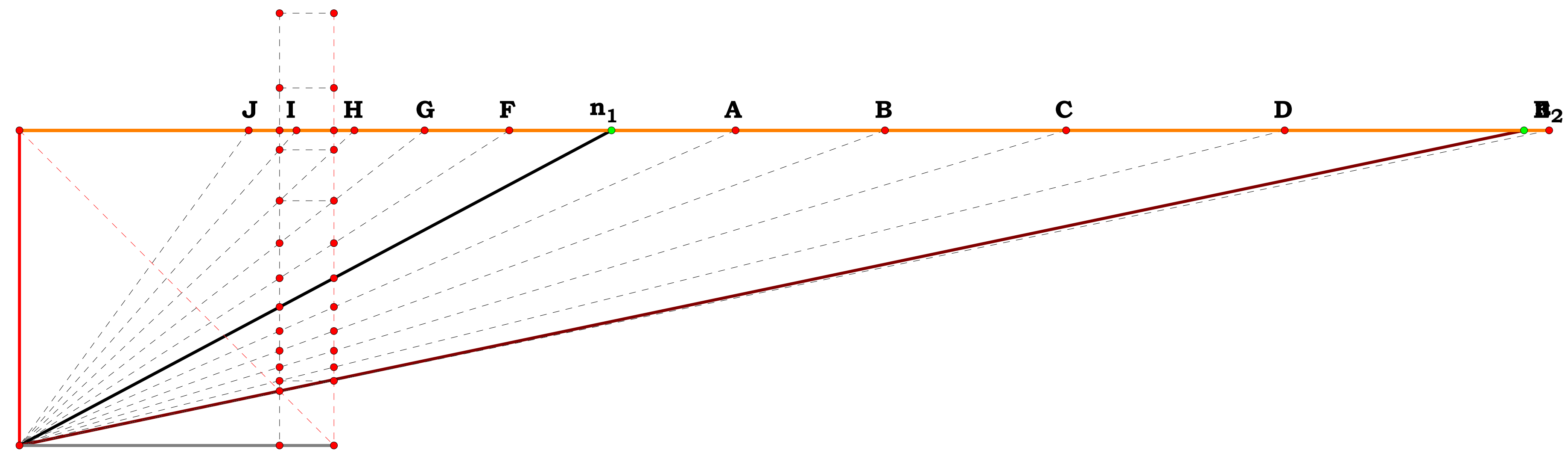
$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{0} - F = 0.00000$$

$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{-1} - G = 0.00000$$

$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{-2} - H = 0.00000$$

$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{-3} - I = 0.00000$$

$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{-4} - J = 0.00000$$



$$\frac{N_1 \cdot N_2 + N_1}{N_2} = 2.27629$$

$$\frac{N_2+1}{N_2} = 1.20903$$

$N_1 = 1.88273$

$N_2 = 4.78390$

A = 2.27629

B = 2.75211

C = 3.32740

D = 4.02294

E = 4.86387

F = 1.55722

G = 1.28799

H = 1.06530

I = 0.88112

J = 0.72878

$$\frac{N_1 \cdot N_2 + N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{0} - A = 0.00000$$

$$\frac{N_1 \cdot N_2 + N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{1} - B = 0.00000$$

$$\frac{N_1 \cdot N_2 + N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{2} - C = 0.00000$$

$$\frac{N_1 \cdot N_2 + N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{3} - D = 0.00000$$

$$\frac{N_1 \cdot N_2 + N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{4} - E = 0.00000$$

$$\frac{N_1 \cdot N_2 + N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{-1} - N_1 = 0.00000$$

$$\frac{N_1 \cdot N_2 + N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{-2} - F = 0.00000$$

$$\frac{N_1 \cdot N_2 + N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{-3} - G = 0.00000$$

$$\frac{N_1 \cdot N_2 + N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{-4} - H = 0.00000$$

$$\frac{N_1 \cdot N_2 + N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{-5} - I = 0.00000$$

$$\frac{N_1 \cdot N_2 + N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{-6} - J = 0.00000$$

$N_1 = 2.10483$

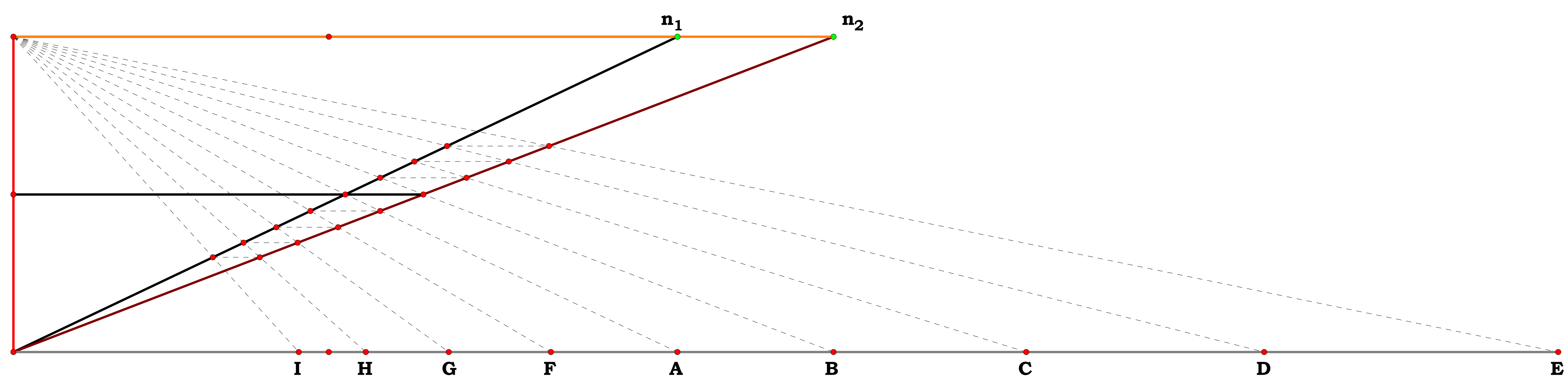
$N_2 = 2.59960$

$x_A = 2.10483$
$x_B = 2.59960$
$x_C = 3.21068$
$x_D = 3.96539$
$x_E = 4.89752$

$x_F = 1.70423$
$x_G = 1.37987$
$x_H = 1.11724$
$x_I = 0.90460$

$$\frac{N_2^0}{N_1^{-1}} = 2.10483 \quad \frac{N_2^1}{N_1^0} = 2.59960 \quad \frac{N_2^2}{N_1^1} = 3.21068 \quad \frac{N_2^3}{N_1^2} = 3.96539 \quad \frac{N_2^4}{N_1^3} = 4.89752$$

$$\frac{N_2^{-1}}{N_1^{-2}} = 1.70423 \quad \frac{N_2^{-2}}{N_1^{-3}} = 1.37987 \quad \frac{N_2^{-3}}{N_1^{-4}} = 1.11724 \quad \frac{N_2^{-4}}{N_1^{-5}} = 0.90460$$



$A^2\text{-}B = 0.00000$
$(A\cdot B)\text{-}C = 0.00000$
$B^2\text{-}D = 0.00000$
$(B\cdot C)\text{-}E = 0.00000$

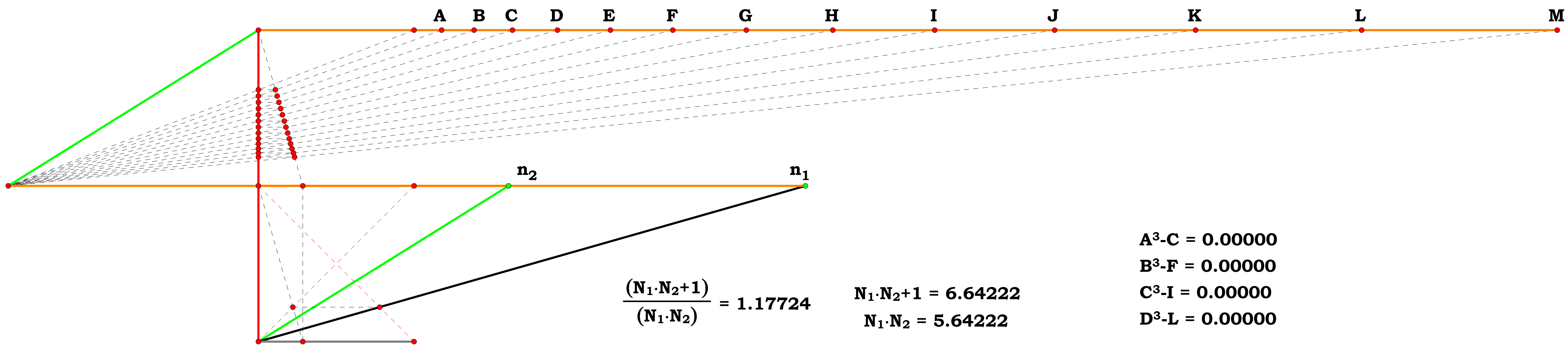
$C^2\text{-}F = 0.00000$
$(C\cdot D)\text{-}G = 0.00000$
$D^2\text{-}H = 0.00000$
$(D\cdot E)\text{-}I = 0.00000$

$E^2\text{-}J = 0.00000$
$(E\cdot F)\text{-}K = 0.00000$
$F^2\text{-}L = 0.00000$
$(F\cdot G)\text{-}M = 0.00000$

$\frac{N_1\cdot N_2+1}{N_1\cdot N_2}^{1}\text{-}A = 0.00000$
$\frac{(N_1\cdot N_2+1)}{(N_1\cdot N_2)}^{2}\text{-}B = 0.00000$
$\frac{(N_1\cdot N_2+1)}{(N_1\cdot N_2)}^{3}\text{-}C = 0.00000$
$\frac{(N_1\cdot N_2+1)}{(N_1\cdot N_2)}^{4}\text{-}D = 0.00000$

$\frac{(N_1\cdot N_2+1)}{(N_1\cdot N_2)}^{5}\text{-}E = 0.00000$
$\frac{(N_1\cdot N_2+1)}{(N_1\cdot N_2)}^{6}\text{-}F = 0.00000$
$\frac{(N_1\cdot N_2+1)}{(N_1\cdot N_2)}^{7}\text{-}G = 0.00000$
$\frac{(N_1\cdot N_2+1)}{(N_1\cdot N_2)}^{8}\text{-}H = 0.00000$

$\frac{(N_1\cdot N_2+1)}{(N_1\cdot N_2)}^{9}\text{-}I = 0.00000$
$\frac{(N_1\cdot N_2+1)}{(N_1\cdot N_2)}^{10}\text{-}J = 0.00000$
$\frac{(N_1\cdot N_2+1)}{(N_1\cdot N_2)}^{11}\text{-}K = 0.00000$
$\frac{(N_1\cdot N_2+1)}{(N_1\cdot N_2)}^{12}\text{-}L = 0.00000$
$\frac{(N_1\cdot N_2+1)}{(N_1\cdot N_2)}^{13}\text{-}M = 0.00000$



$\frac{(N_1\cdot N_2+1)}{(N_1\cdot N_2)} = 1.17724$

$N_1\cdot N_2+1 = 6.64222$
$N_1\cdot N_2 = 5.64222$

$A^3\text{-}C = 0.00000$
$B^3\text{-}F = 0.00000$
$C^3\text{-}I = 0.00000$
$D^3\text{-}L = 0.00000$

$N_1 = 3.51340$
$N_2 = 1.60591$

$A = 1.17724$
$B = 1.38588$
$C = 1.63151$
$D = 1.92067$
$E = 2.26108$

$F = 2.66183$
$G = 3.13360$
$H = 3.68898$
$I = 4.34280$

$J = 5.11249$
$K = 6.01861$
$L = 7.08532$
$M = 8.34108$

$A^2 = 1.38588$
$A\cdot B = 1.63151$
$B^2 = 1.92067$
$B\cdot C = 2.26108$

$C^2 = 2.66183$
$C\cdot D = 3.13360$
$D^2 = 3.68898$
$D\cdot E = 4.34280$

$E^2 = 5.11249$
$E\cdot F = 6.01861$
$F^2 = 7.08532$
$F\cdot G = 8.34108$

B = 1.31080
C = 1.71820
D = 2.25222
E = 2.95221
F = 3.86977
G = 5.07250

$$\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)} = 1.31080 \qquad \left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^1 - B = 0.00000$$

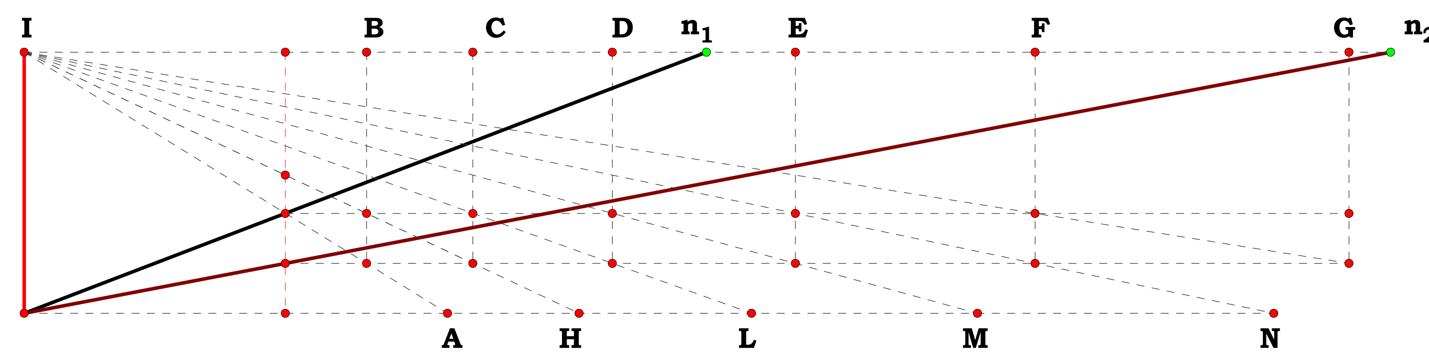
$$\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^2 = 1.71820 \qquad \left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^2 - C = 0.00000$$

$$\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^3 = 2.25222 \qquad \left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^3 - D = 0.00000$$

$$\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^4 = 2.95221 \qquad \left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^4 - E = 0.00000$$

$$\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^5 = 3.86977 \qquad \left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^5 - F = 0.00000$$

$$\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^6 = 5.07250 \qquad \left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^6 - G = 0.00000$$



$$\frac{N_1}{N_1-1} - A = 0.00000$$

$$\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2} = 2.12423$$

$N_1 = 2.61146$
$N_2 = 5.23175$

A = 1.62056
H = 2.12423
L = 2.78444
M = 3.64985
N = 4.78423

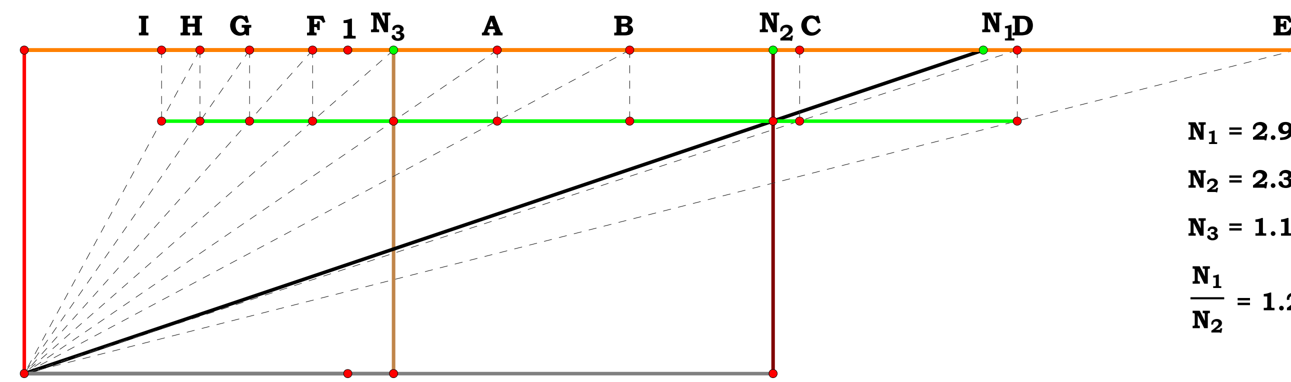
$$\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^{-1} = 1.62056 \qquad \left(\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^{-1}\right) - A = 0.00000$$

$$\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^{0} = 2.12423 \qquad \left(\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^{0}\right) - H = 0.00000$$

$$\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^{1} = 2.78444 \qquad \left(\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^{1}\right) - L = 0.00000$$

$$\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^{2} = 3.64985 \qquad \left(\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^{2}\right) - M = 0.00000$$

$$\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^{3} = 4.78423 \qquad \left(\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^{3}\right) - N = 0.00000$$



$N_1 = 2.96382$

$N_2 = 2.31441$

$N_3 = 1.14115$

$\frac{N_1}{N_2} = 1.28059$

A = 1.46135
B = 1.87140
C = 2.39649
D = 3.06893
E = 3.93005
F = 0.89111
G = 0.69586
H = 0.54339
I = 0.42433

$N_3 \cdot \frac{N_1}{N_2}^{1} - A = 0.00000$

$N_3 \cdot \frac{N_1}{N_2}^{2} - B = 0.00000$

$N_3 \cdot \frac{N_1}{N_2}^{3} - C = 0.00000$

$N_3 \cdot \frac{N_1}{N_2}^{4} - D = 0.00000$

$N_3 \cdot \frac{N_1}{N_2}^{5} - E = 0.00000$

$N_3 \cdot \frac{N_1}{N_2}^{-1} - F = 0.00000$

$N_3 \cdot \frac{N_1}{N_2}^{-2} - G = 0.00000$

$N_3 \cdot \frac{N_1}{N_2}^{-3} - H = 0.00000$

$N_3 \cdot \frac{N_1}{N_2}^{-4} - I = 0.00000$

Plate 5

$\frac{N_1 \cdot N_3}{N_2} - A = 0.00000$

$\frac{N_1^{2} \cdot N_3}{N_2^{2}} - B = 0.00000$

$\frac{N_1^{3} \cdot N_3}{N_2^{3}} - C = 0.00000$

$\frac{N_1^{4} \cdot N_3}{N_2^{4}} - D = 0.00000$

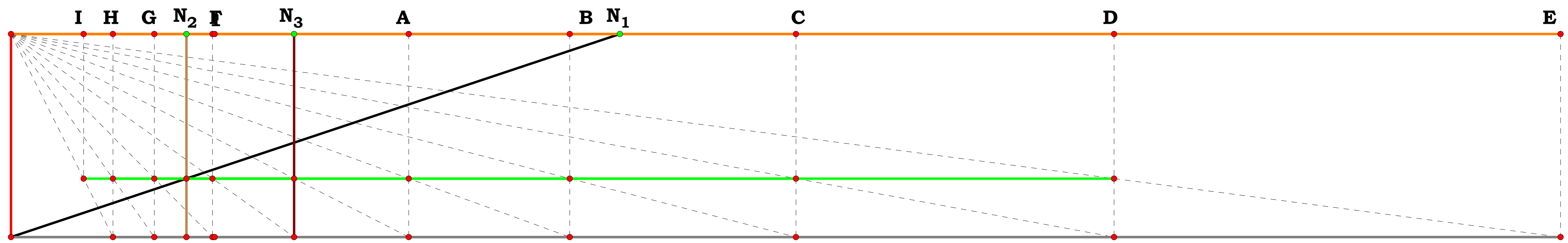
$\frac{N_1^{5} \cdot N_3}{N_2^{5}} - E = 0.00000$

$\frac{N_2^{4} \cdot N_3}{N_1^{4}} - I = 0.00000$

$\frac{N_2^{3} \cdot N_3}{N_1^{3}} - H = 0.00000$

$\frac{N_2^{2} \cdot N_3}{N_1^{2}} - G = 0.00000$

$\frac{N_2 \cdot N_3}{N_1} - F = 0.00000$



$N_1 = 2.98906$

$N_2 = 0.86166$

$N_3 = 1.38922$

$\frac{N_1}{N_1 - N_2} = 1.40503$

A = 1.95189
B = 2.74246
C = 3.85323
D = 5.41390
E = 7.60667
F = 0.98875
G = 0.70372
H = 0.50086
I = 0.35648

$$N_3 \cdot \left(\frac{N_1}{N_1 - N_2}\right)^{1} - A = 0.00000$$

$$N_3 \cdot \left(\frac{N_1}{N_1 - N_2}\right)^{2} - B = 0.00000$$

$$N_3 \cdot \left(\frac{N_1}{N_1 - N_2}\right)^{3} - C = 0.00000$$

$$N_3 \cdot \left(\frac{N_1}{N_1 - N_2}\right)^{4} - D = 0.00000$$

$$N_3 \cdot \left(\frac{N_1}{N_1 - N_2}\right)^{5} - E = 0.00000$$

$$N_3 \cdot \left(\frac{N_1}{N_1 - N_2}\right)^{-1} - F = 0.00000$$

$$N_3 \cdot \left(\frac{N_1}{N_1 - N_2}\right)^{-2} - G = 0.00000$$

$$N_3 \cdot \left(\frac{N_1}{N_1 - N_2}\right)^{-3} - H = 0.00000$$

$$N_3 \cdot \left(\frac{N_1}{N_1 - N_2}\right)^{-4} - I = 0.00000$$

$$\frac{N_1 \cdot N_3}{N_1 - N_2} - A = 0.00000$$

$$\frac{N_1^2 \cdot N_3}{(N_1^2 - 2 \cdot N_1 \cdot N_2) + N_2^2} - B = 0.00000$$

$$\frac{N_1^3 \cdot N_3}{((N_1^3 - 3 \cdot N_1^2 \cdot N_2) + 3 \cdot N_1 \cdot N_2^2) - N_2^3} - C = 0.00000$$

$$\frac{N_1^4 \cdot N_3}{(((N_1^4 - 4 \cdot N_1^3 \cdot N_2) + 6 \cdot N_1^2 \cdot N_2^2) - 4 \cdot N_1 \cdot N_2^3) + N_2^4} - D = 0.00000$$

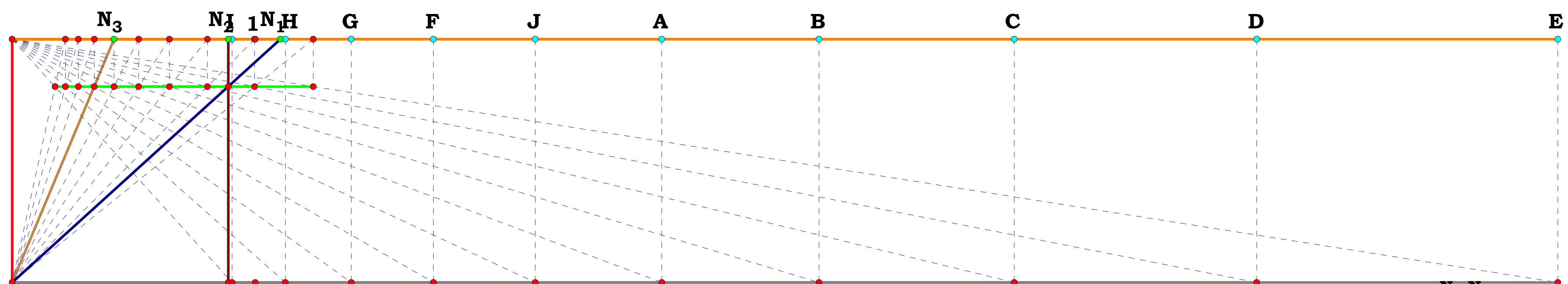
$$\frac{N_1^5 \cdot N_3}{((((N_1^5 - 5 \cdot N_1^4 \cdot N_2) + 10 \cdot N_1^3 \cdot N_2^2) - 10 \cdot N_1^2 \cdot N_2^3) + 5 \cdot N_1 \cdot N_2^4) - N_2^5} - E = 0.00000$$

$$\frac{(((N_1^4 \cdot N_3 - 4 \cdot N_1^3 \cdot N_2 \cdot N_3) + 6 \cdot N_1^2 \cdot N_2^2 \cdot N_3) - 4 \cdot N_1 \cdot N_2^3 \cdot N_3) + N_2^4 \cdot N_3}{N_1^4} - I = 0.00000$$

$$\frac{((N_1^3 \cdot N_3 - 3 \cdot N_1^2 \cdot N_2 \cdot N_3) + 3 \cdot N_1 \cdot N_2^2 \cdot N_3) - N_2^3 \cdot N_3}{N_1^3} - H = 0.00000$$

$$\frac{(N_1^2 \cdot N_3 - 2 \cdot N_1 \cdot N_2 \cdot N_3) + N_2^2 \cdot N_3}{N_1^2} - G = 0.00000$$

$$\frac{N_1 \cdot N_3 - N_2 \cdot N_3}{N_1} - F = 0.00000$$



$N_1 = 1.10350$

$N_2 = 0.88853$

$N_3 = 0.41903$

$\frac{N_1}{N_2} = 1.24195$

$\frac{N_1 \cdot N_3}{N_1 - N_2} = 2.15096$

J = 2.15096

A = 2.67138

B = 3.31772

C = 4.12043

D = 5.11735

E = 6.35548

F = 1.73193

G = 1.39453

H = 1.12286

I = 0.90411

$$\frac{N_1{}^0}{N_2} \cdot \frac{N_1 \cdot N_3}{N_1 - N_2} - J = 0.00000$$

$$\frac{N_1{}^1}{N_2} \cdot \frac{N_1 \cdot N_3}{N_1 - N_2} - A = 0.00000$$

$$\frac{N_1{}^2}{N_2} \cdot \frac{N_1 \cdot N_3}{N_1 - N_2} - B = 0.00000$$

$$\frac{N_1{}^3}{N_2} \cdot \frac{N_1 \cdot N_3}{N_1 - N_2} - C = 0.00000$$

$$\frac{N_1{}^4}{N_2} \cdot \frac{N_1 \cdot N_3}{N_1 - N_2} - D = 0.00000$$

$$\frac{N_1{}^5}{N_2} \cdot \frac{N_1 \cdot N_3}{N_1 - N_2} - E = 0.00000$$

$$\frac{N_1{}^{-1}}{N_2} \cdot \frac{N_1 \cdot N_3}{N_1 - N_2} - F = 0.00000$$

$$\frac{N_1{}^{-2}}{N_2} \cdot \frac{N_1 \cdot N_3}{N_1 - N_2} - G = 0.00000$$

$$\frac{N_1{}^{-3}}{N_2} \cdot \frac{N_1 \cdot N_3}{N_1 - N_2} - H = 0.00000$$

$$\frac{N_1{}^{-4}}{N_2} \cdot \frac{N_1 \cdot N_3}{N_1 - N_2} - I = 0.00000$$

$$\frac{N_1 \cdot N_3}{N_1 - N_2} - J = 0.00000$$

$$\frac{N_1{}^2 \cdot N_3}{N_1 \cdot N_2 - N_2{}^2} - A = 0.00000$$

$$\frac{N_1{}^3 \cdot N_3}{N_1 \cdot N_2{}^2 - N_2{}^3} - B = 0.00000$$

$$\frac{N_1{}^4 \cdot N_3}{N_1 \cdot N_2{}^3 - N_2{}^4} - C = 0.00000$$

$$\frac{N_1{}^5 \cdot N_3}{N_1 \cdot N_2{}^4 - N_2{}^5} - D = 0.00000$$

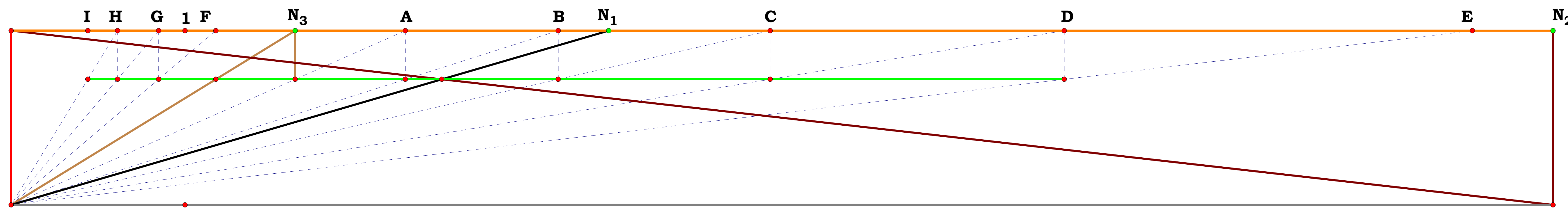
$$\frac{N_1{}^6 \cdot N_3}{N_1 \cdot N_2{}^5 - N_2{}^6} - E = 0.00000$$

$$\frac{N_2 \cdot N_3}{N_1 - N_2} - F = 0.00000$$

$$\frac{N_2{}^2 \cdot N_3}{N_1{}^2 - N_1 \cdot N_2} - G = 0.00000$$

$$\frac{N_2{}^3 \cdot N_3}{N_1{}^3 - N_1{}^2 \cdot N_2} - H = 0.00000$$

$$\frac{N_2{}^4 \cdot N_3}{N_1{}^4 - N_1{}^3 \cdot N_2} - I = 0.00000$$



$N_1 = 3.43566$

$N_2 = 8.86571$

$N_3 = 1.63369$

$A = 2.26679$

$B = 3.14522$

$C = 4.36406$

$D = 6.05523$

$E = 8.40177$

$F = 1.17742$

$G = 0.84858$

$H = 0.61158$

$I = 0.44077$

$$N_3 \cdot \frac{N_1+N_2}{N_2}^{1} - A = 0.00000$$

$$N_3 \cdot \frac{N_1+N_2}{N_2}^{2} - B = 0.00000$$

$$N_3 \cdot \frac{N_1+N_2}{N_2}^{3} - C = 0.00000$$

$$N_3 \cdot \frac{N_1+N_2}{N_2}^{4} - D = 0.00000$$

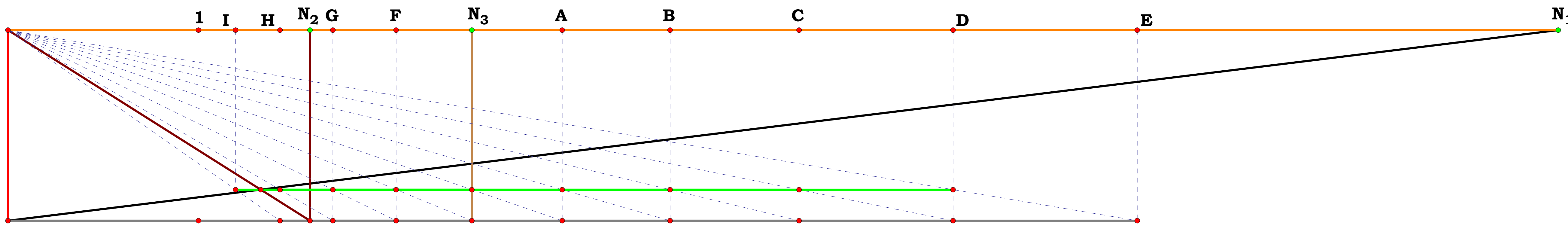
$$N_3 \cdot \frac{N_1+N_2}{N_2}^{5} - E = 0.00000$$

$$N_3 \cdot \frac{N_1+N_2}{N_2}^{-1} - F = 0.00000$$

$$N_3 \cdot \frac{N_1+N_2}{N_2}^{-2} - G = 0.00000$$

$$N_3 \cdot \frac{N_1+N_2}{N_2}^{-3} - H = 0.00000$$

$$N_3 \cdot \frac{N_1+N_2}{N_2}^{-4} - I = 0.00000$$



$$\frac{N_1+N_2}{N_1} = 1.19477$$

A = 2.90820

B = 3.47463

C = 4.15140

D = 4.95998

E = 5.92605

$$N_3 \cdot \frac{N_1+N_2}{N_1} - A = 0.00000$$

$$N_3 \cdot \frac{N_1+N_2}{N_1}^{2} - B = 0.00000$$

$$N_3 \cdot \frac{N_1+N_2}{N_1}^{3} - C = 0.00000$$

$$N_3 \cdot \frac{N_1+N_2}{N_1}^{4} - D = 0.00000$$

$$N_3 \cdot \frac{N_1+N_2}{N_1}^{5} - E = 0.00000$$

F = 2.03729

G = 1.70517

H = 1.42719

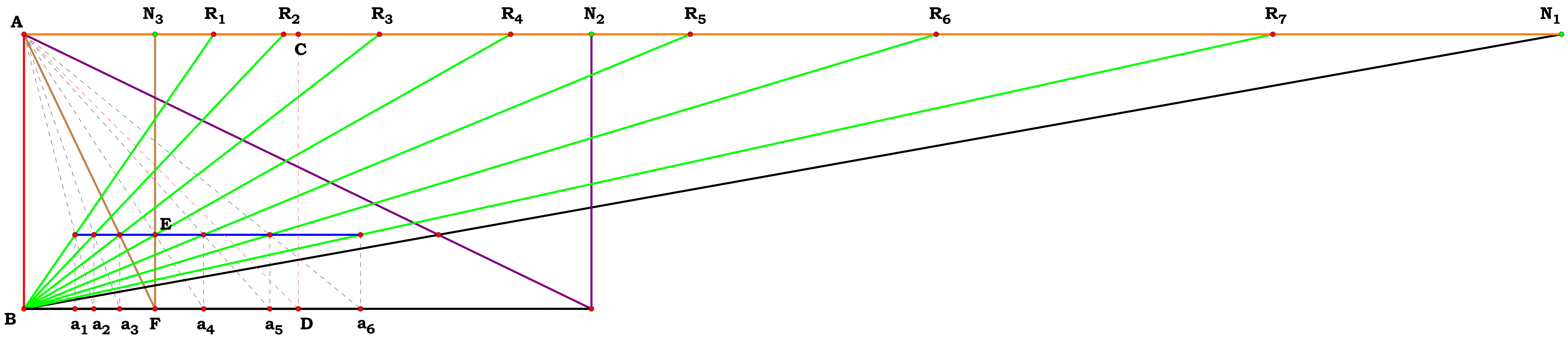
I = 1.19453

$$N_3 \cdot \frac{N_1+N_2}{N_1}^{-1} - F = 0.00000$$

$$N_3 \cdot \frac{N_1+N_2}{N_1}^{-2} - G = 0.00000$$

$$N_3 \cdot \frac{N_1+N_2}{N_1}^{-3} - H = 0.00000$$

$$N_3 \cdot \frac{N_1+N_2}{N_1}^{-4} - I = 0.00000$$



$N_1 = 5.60373$

$N_2 = 2.06808$

$N_3 = 0.47811$

$R_1 = 0.69119$

$R_2 = 0.94627$

$R_3 = 1.29550$

$R_4 = 1.77360$

$R_5 = 2.42816$

$R_6 = 3.32429$

$R_7 = 4.55113$

$$\frac{N_1 \cdot N_3}{N_2} = 1.29550$$

$$\frac{N_1 + N_2}{N_1} = 1.36905$$

$$R_1 - \frac{N_1 \cdot N_3}{N_2} \cdot \frac{N_1 + N_2}{N_1}^{-2} = 0.00000$$

$$R_2 - \frac{N_1 \cdot N_3}{N_2} \cdot \frac{N_1 + N_2}{N_1}^{-1} = 0.00000$$

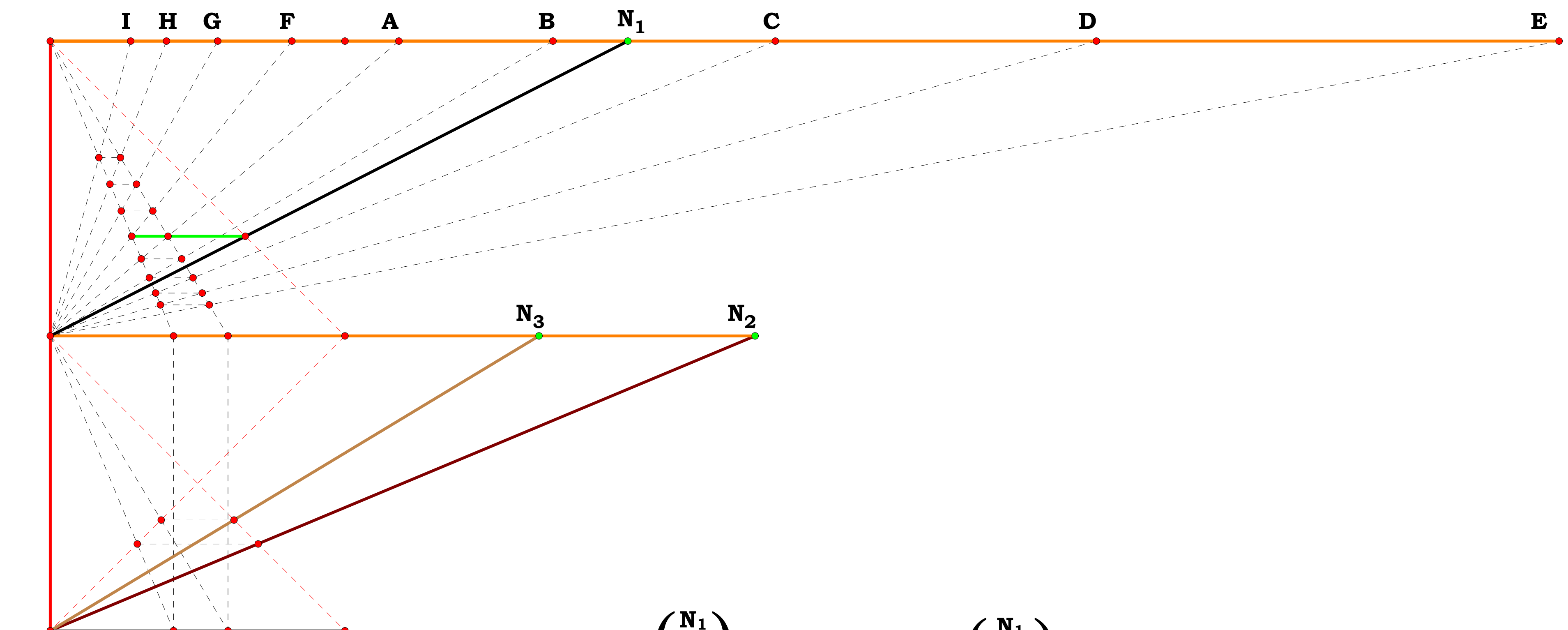
$$R_3 - \frac{N_1 \cdot N_3}{N_2} \cdot \frac{N_1 + N_2}{N_1}^{0} = 0.00000$$

$$R_4 - \frac{N_1 \cdot N_3}{N_2} \cdot \frac{N_1 + N_2}{N_1} = 0.00000$$

$$R_5 - \frac{N_1 \cdot N_3}{N_2} \cdot \frac{N_1 + N_2}{N_1}^{2} = 0.00000$$

$$R_6 - \frac{N_1 \cdot N_3}{N_2} \cdot \frac{N_1 + N_2}{N_1}^{3} = 0.00000$$

$$R_7 - \frac{N_1 \cdot N_3}{N_2} \cdot \frac{N_1 + N_2}{N_1}^{4} = 0.00000$$



$N_1 = 1.95987$

$N_2 = 2.39124$

$N_3 = 1.65771$

A = 1.18227

B = 1.70541

C = 2.46005

D = 3.54859

E = 5.11881

F = 0.81960

G = 0.56819

H = 0.39389

I = 0.27306

$$\left(\frac{N_1}{N_3}\right)\cdot N_2^{0}-A = 0.00000$$

$$\left(\frac{N_1}{N_3^{2}}\right)\cdot N_2-B = 0.00000$$

$$\left(\frac{N_1}{N_3^{3}}\right)\cdot N_2^{2}-C = 0.00000$$

$$\left(\frac{N_1}{N_3^{4}}\right)\cdot N_2^{3}-D = 0.00000$$

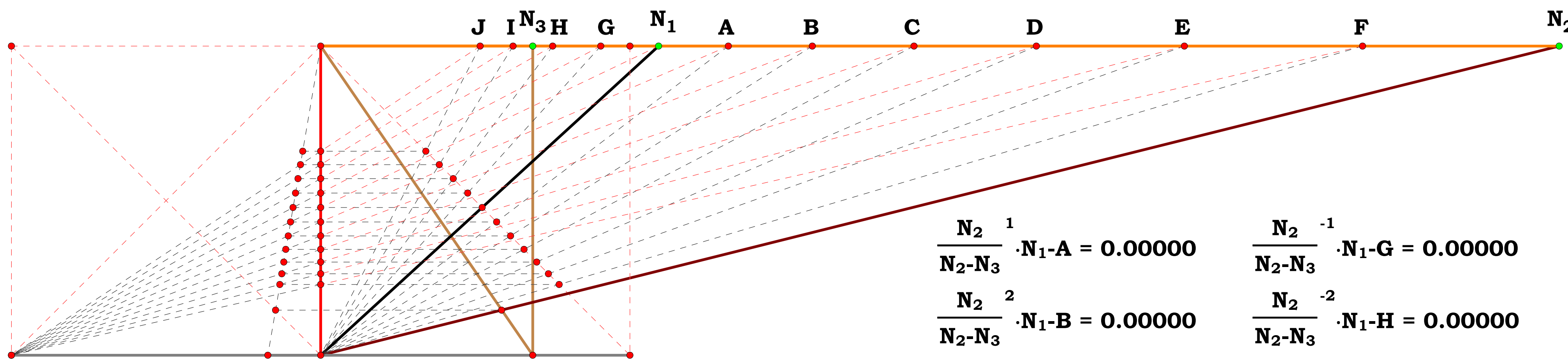
$$\left(\frac{N_1}{N_3^{5}}\right)\cdot N_2^{4}-E = 0.00000$$

$$\left(\frac{N_1}{N_3^{0}}\right)\cdot N_2^{-1}-F = 0.00000$$

$$\left(\frac{N_1}{N_3^{-1}}\right)\cdot N_2^{-2}-G = 0.00000$$

$$\left(\frac{N_1}{N_3^{-2}}\right)\cdot N_2^{-3}-H = 0.00000$$

$$\left(\frac{N_1}{N_3^{-3}}\right)\cdot N_2^{-4}-I = 0.00000$$



$$\left(\frac{N_1^{\frac{1}{4}}\cdot N_2}{N_2-N_3}\right)^4-D = 0.00000$$

$$\frac{N_1\cdot N_2^4}{(N_2-N_3)^4}-D = 0.00000$$

$$\frac{N_2}{N_2-N_3} = 1.20647$$

$N_1 = 1.09230$

$N_2 = 4.00439$

$N_3 = 0.68530$

$A = 1.31783$

$B = 1.58992$

$C = 1.91819$

$D = 2.31425$

$E = 2.79207$

$F = 3.36855$

$G = 0.90537$

$H = 0.75043$

$I = 0.62200$

$J = 0.51556$

$$\left(\frac{N_2}{N_2-N_3}\right)^1\cdot N_1-A = 0.00000$$

$$\left(\frac{N_2}{N_2-N_3}\right)^2\cdot N_1-B = 0.00000$$

$$\left(\frac{N_2}{N_2-N_3}\right)^3\cdot N_1-C = 0.00000$$

$$\left(\frac{N_2}{N_2-N_3}\right)^4\cdot N_1-D = 0.00000$$

$$\left(\frac{N_2}{N_2-N_3}\right)^5\cdot N_1-E = 0.00000$$

$$\left(\frac{N_2}{N_2-N_3}\right)^6\cdot N_1-F = 0.00000$$

$$\left(\frac{N_2}{N_2-N_3}\right)^{-1}\cdot N_1-G = 0.00000$$

$$\left(\frac{N_2}{N_2-N_3}\right)^{-2}\cdot N_1-H = 0.00000$$

$$\left(\frac{N_2}{N_2-N_3}\right)^{-3}\cdot N_1-I = 0.00000$$

$$\left(\frac{N_2}{N_2-N_3}\right)^{-4}\cdot N_1-J = 0.00000$$

Fractional Series Introduction 1

As the first page of the original Series Introduction was a title page with no figure on it, I have decided to do, now, what I did not do, then. This will be a 9 figure series of simple single variable plates helping to learning how to manipulate a universal naming convention making it particular to particular circumstances and particular things while maintaining the given original linguistic concepts.

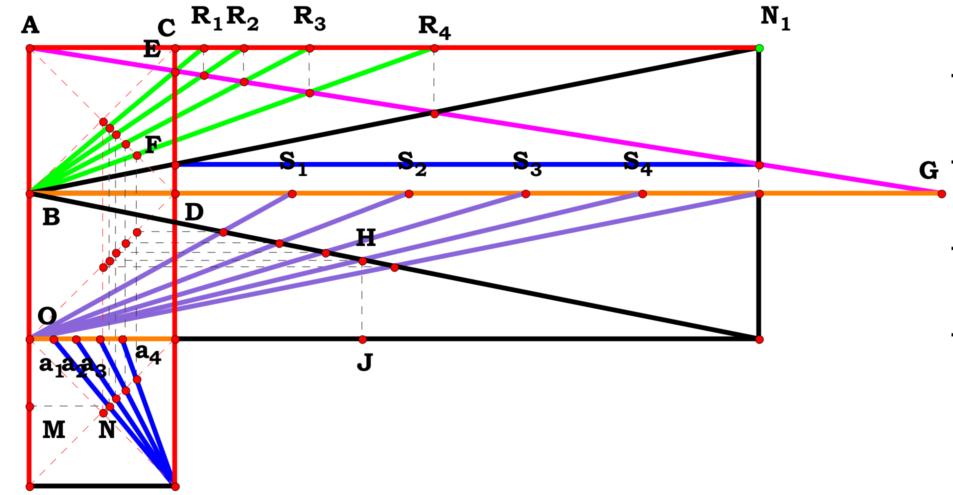
Each of these plates teaches one how, starting from a given unit, to count or enumerate using an extended naming convention defined by the figure itself.

In short, we learn how to enumerate, or count, we learn the basic operations, and then we learn to combine the two to fabricate enumerating systems for particular situations using the given Universal Linguistic Concepts.

Do not forget to read the concluding remarks at the end of the series.

figure 1.

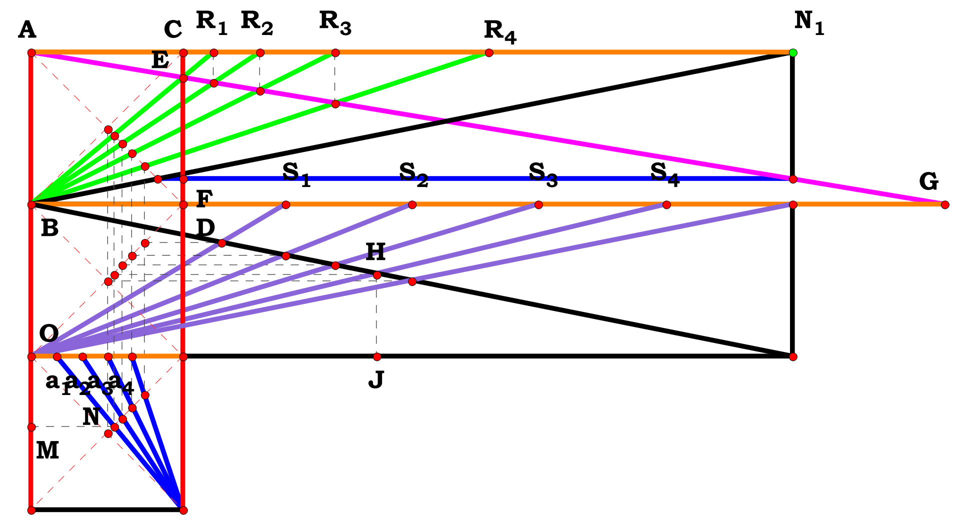
$N_1 = 5.00000$
$R_1 = 1.19048$
$R_2 = 1.47059$
$R_3 = 1.92308$
$R_4 = 2.77778$
$S_1 = 1.80000$
$S_2 = 2.60000$
$S_3 = 3.40000$
$S_4 = 4.20000$
$a_1 = 0.16000$
$a_2 = 0.32000$
$a_3 = 0.48000$
$a_4 = 0.64000$



$\frac{N_1}{R_1} = 4.20000$ $\frac{N_1}{S_1} = 2.77778$ $\frac{N_1}{a_1} = 31.25000$
$\frac{N_1}{R_2} = 3.40000$ $\frac{N_1}{S_2} = 1.92308$ $\frac{N_1}{a_2} = 15.62500$
$\frac{N_1}{R_3} = 2.60000$ $\frac{N_1}{S_3} = 1.47059$ $\frac{N_1}{a_3} = 10.41667$
$\frac{N_1}{R_4} = 1.80000$ $\frac{N_1}{S_4} = 1.19048$ $\frac{N_1}{a_4} = 7.81250$

figure 4.

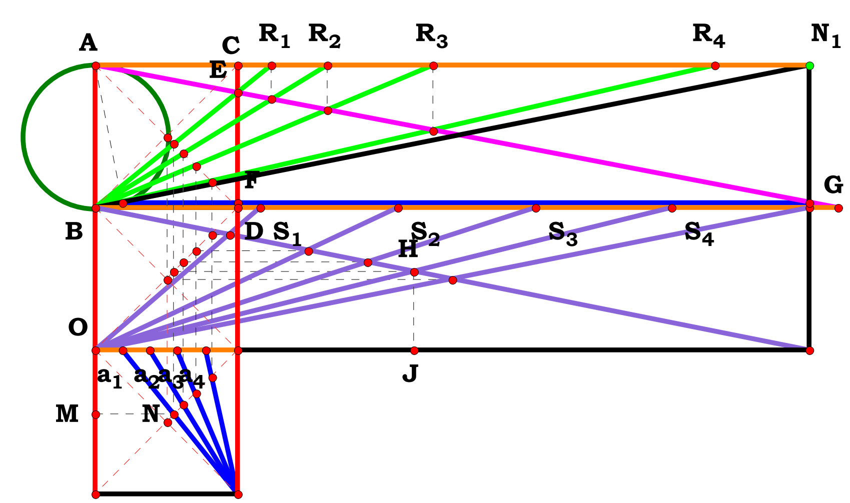
$N_1 = 5.00000$
$R_1 = 1.20000$
$R_2 = 1.50000$
$R_3 = 2.00000$
$R_4 = 3.00000$
$S_1 = 1.66667$
$S_2 = 2.50000$
$S_3 = 3.33333$
$S_4 = 4.16667$
$a_1 = 0.16667$
$a_2 = 0.33333$
$a_3 = 0.50000$
$a_4 = 0.66667$



$\frac{N_1}{R_1} = 4.16667$ $\frac{N_1}{S_1} = 3.00000$ $\frac{N_1}{a_1} = 30.00000$
$\frac{N_1}{R_2} = 3.33333$ $\frac{N_1}{S_2} = 2.00000$ $\frac{N_1}{a_2} = 15.00000$
$\frac{N_1}{R_3} = 2.50000$ $\frac{N_1}{S_3} = 1.50000$ $\frac{N_1}{a_3} = 10.00000$
$\frac{N_1}{R_4} = 1.66667$ $\frac{N_1}{S_4} = 1.20000$ $\frac{N_1}{a_4} = 7.50000$

figure 7.

$N_1 = 5.00000$
$R_1 = 1.23810$
$R_2 = 1.62500$
$R_3 = 2.36364$
$R_4 = 4.33333$
$S_1 = 1.15385$
$S_2 = 2.11538$
$S_3 = 3.07692$
$S_4 = 4.03846$
$a_1 = 0.19231$
$a_2 = 0.38462$
$a_3 = 0.57692$
$a_4 = 0.76923$



$\frac{N_1}{R_1} = 4.03846$ $\frac{N_1}{S_1} = 4.33333$ $\frac{N_1}{a_1} = 26.00000$
$\frac{N_1}{R_2} = 3.07692$ $\frac{N_1}{S_2} = 2.36364$ $\frac{N_1}{a_2} = 13.00000$
$\frac{N_1}{R_3} = 2.11538$ $\frac{N_1}{S_3} = 1.62500$ $\frac{N_1}{a_3} = 8.66667$
$\frac{N_1}{R_4} = 1.15385$ $\frac{N_1}{S_2} = 2.36364$ $\frac{N_1}{a_4} = 6.50000$

Figure 1, 2 and 3.

$AB := 1$

$N_1 := 5$

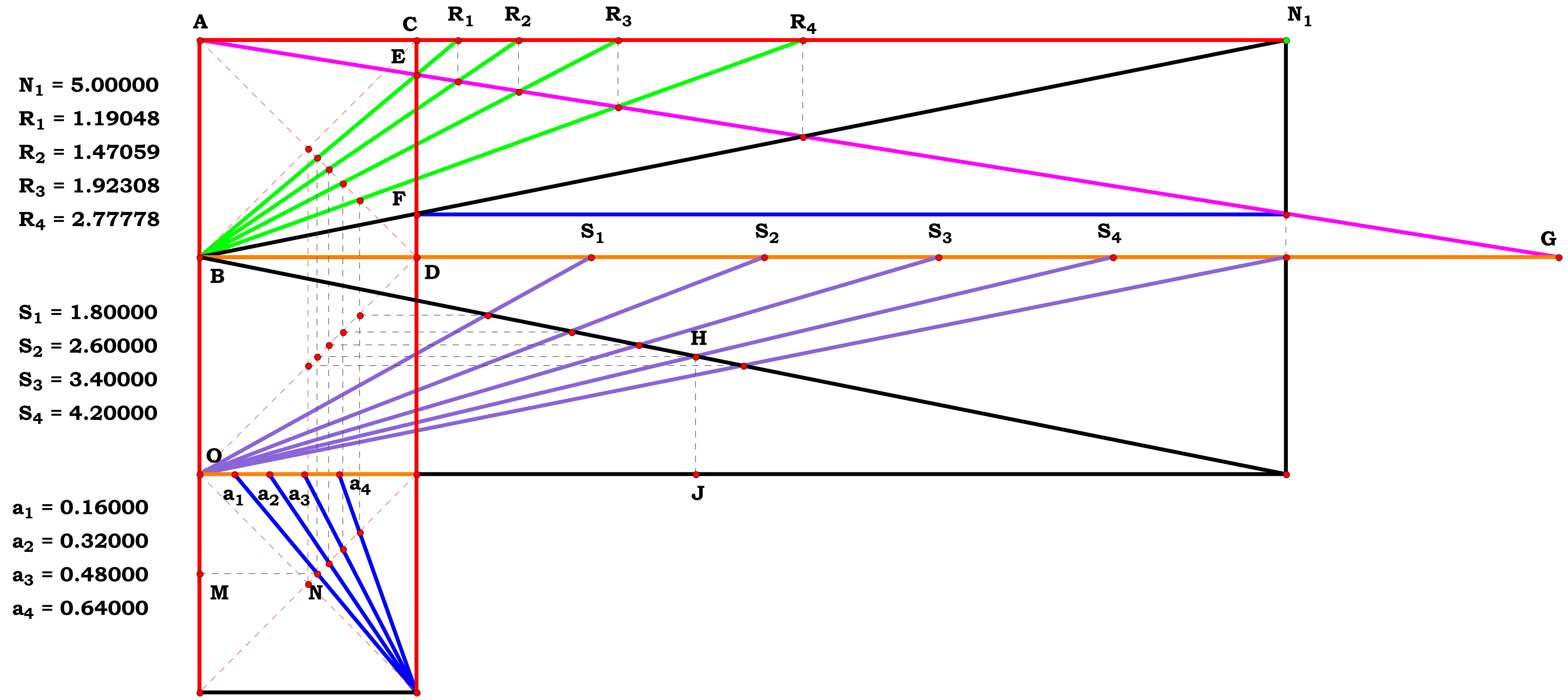


Figure 1.

$DF := \frac{1}{N_1} \quad BG := \frac{N_1}{1 - DF} \quad CE := \frac{1}{BG}$

$R_1 := \frac{1}{1 - CE} \quad R_1 - \frac{N_1^{\,2}}{N_1^{\,2} - (N_1 - 1)} = 0$

$$\frac{N_1^{\,2}}{N_1^{\,2} - \text{Index}\cdot(N_1 - 1)}$$

$$\frac{N_1^{\,2}}{N_1^{\,2} - 2\cdot(N_1 - 1)} = 1.470588$$

$$\frac{N_1^{\,2}}{N_1^{\,2} - 3\cdot(N_1 - 1)} = 1.923077$$

$$\frac{N_1^{\,2}}{N_1^{\,2} - 4\cdot(N_1 - 1)} = 2.777778$$

Figure 2.

$HJ := \frac{1}{R_1 + 1} \quad JO := N_1\cdot HJ \quad S_4 := \frac{JO}{1 - HJ} \quad S_4 - \frac{N_1}{R_1} = 0 \quad S_4 = 4.2$

$$\frac{N_1^{\,2} - \text{Index}\cdot(N_1 - 1)}{N_1}$$

$$\frac{N_1^{\,2} - 1\cdot(N_1 - 1)}{N_1} = 4.2$$

$$\frac{N_1^{\,2} - 2\cdot(N_1 - 1)}{N_1} = 3.4$$

$$\frac{N_1^{\,2} - 3\cdot(N_1 - 1)}{N_1} = 2.6$$

$$\frac{N_1^{\,2} - 4\cdot(N_1 - 1)}{N_1} = 1.8$$

Interval between consecutive S sub x's.

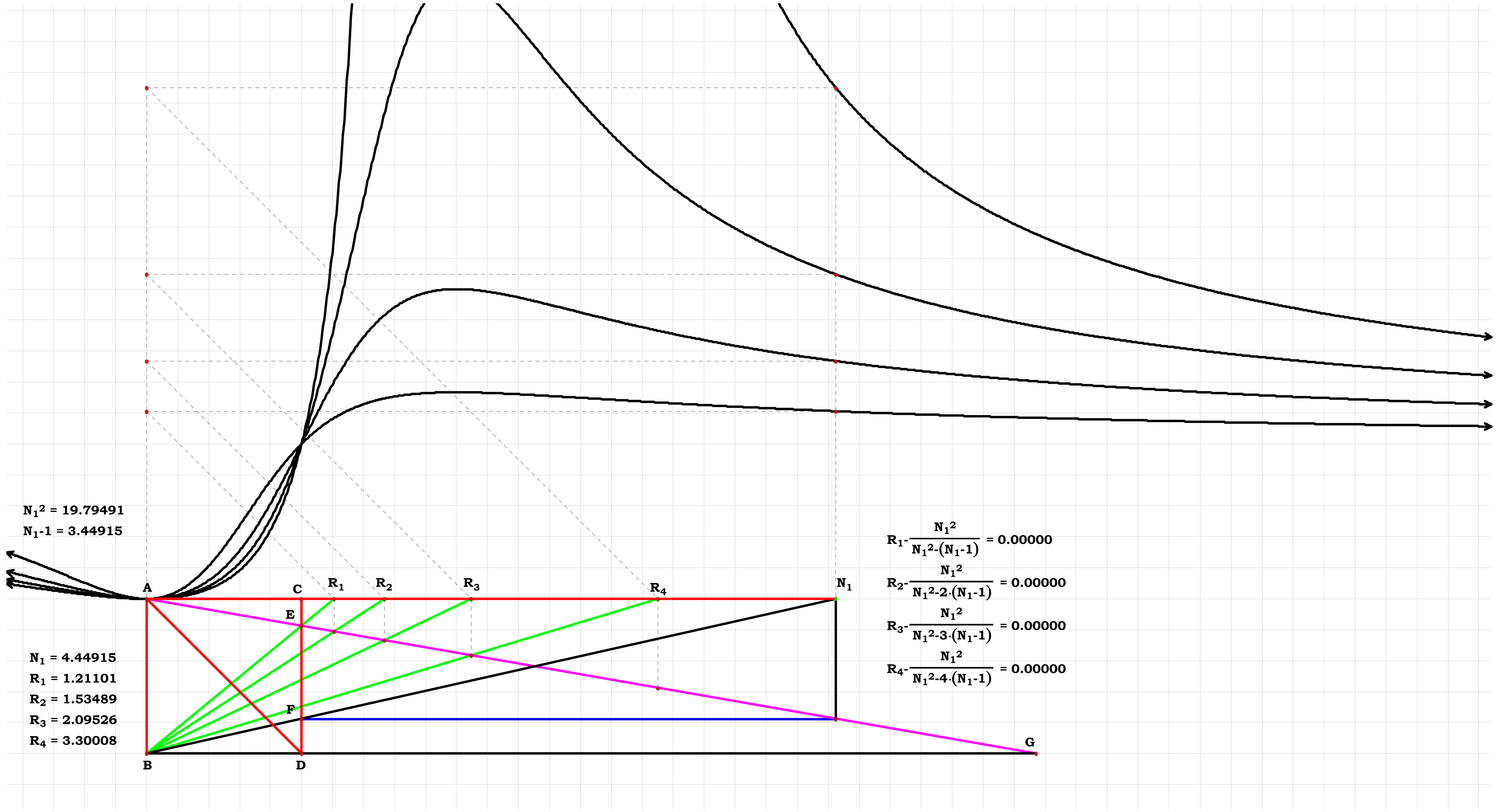
$\frac{N_1 - 1}{N_1} = 0.8 \quad S_4 + \frac{N_1 - 1}{N_1} - N_1 = 0$

Figure 3.

$MN := R_1\cdot HJ \quad a_1 := 1 - \frac{1 - MN}{MN} \quad \frac{\text{Index}\cdot(N_1 - 1)}{N_1^{\,2}} \quad a_1 = 0.16$

$\frac{2\cdot(N_1 - 1)}{N_1^{\,2}} = 0.32 \quad \frac{3\cdot(N_1 - 1)}{N_1^{\,2}} = 0.48 \quad \frac{1}{a_1} = 6.25$

$\frac{3\cdot(N_1 - 1)}{N_1^{\,2}} = 0.48 \quad \frac{4\cdot(N_1 - 1)}{N_1^{\,2}} = 0.64$



$N_1^2 = 19.79491$
$N_1 - 1 = 3.44915$
A
C
R_1
R_2
R_3
R_4
N_1
E
F
B
D
G
$N_1 = 4.44915$
$R_1 = 1.21101$
$R_2 = 1.53489$
$R_3 = 2.09526$
$R_4 = 3.30008$
$R_1 - \frac{N_1^2}{N_1^2 - (N_1 - 1)} = 0.00000$
$R_2 - \frac{N_1^2}{N_1^2 - 2 \cdot (N_1 - 1)} = 0.00000$
$R_3 - \frac{N_1^2}{N_1^2 - 3 \cdot (N_1 - 1)} = 0.00000$
$R_4 - \frac{N_1^2}{N_1^2 - 4 \cdot (N_1 - 1)} = 0.00000$

Figure 4, 5 and 6.

$\underline{AB} := 1$

$\underline{N_1} := 5$

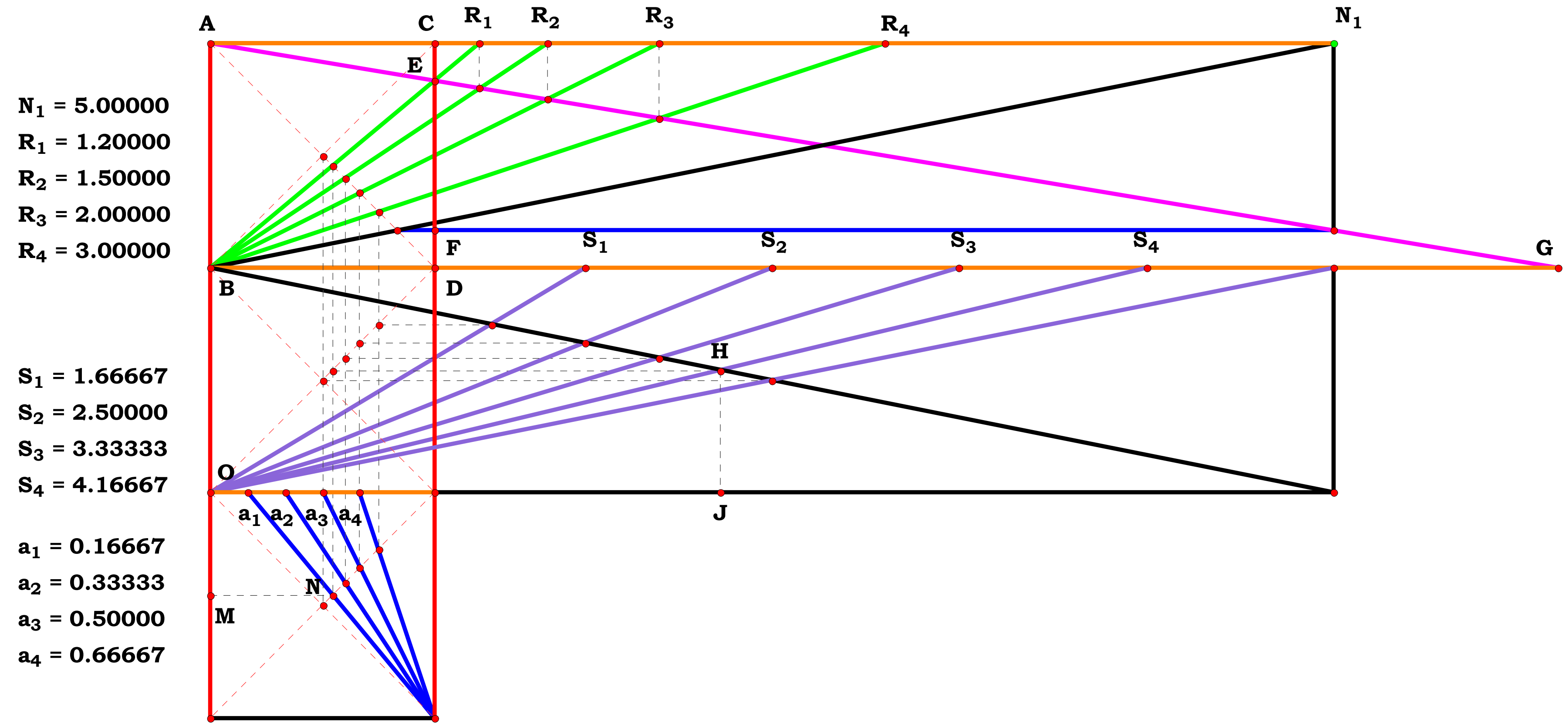


Figure 4.

$$\underline{DF} := \frac{1}{N_1 + 1} \qquad \underline{BG} := \frac{N_1}{1 - DF} \qquad \underline{CE} := \frac{1}{BG}$$

$$\underline{R_1} := \frac{1}{1 - CE} \qquad R_1 - \frac{N_1 + 1}{N_1} = 0$$

$$\frac{N_1 + 1}{N_1 + 1 - \mathrm{Index}}$$

$$\frac{N_1 + 1}{N_1 + 1 - 2} = 1.5$$

$$\frac{N_1 + 1}{N_1 + 1 - 3} = 2$$

$$\frac{N_1 + 1}{N_1 + 1 - 4} = 3$$

Figure 5.

$$\underline{HJ} := \frac{1}{R_1 + 1} \qquad \underline{JO} := N_1 \cdot HJ \qquad \underline{S_4} := \frac{JO}{1 - HJ} \qquad S_4 - \frac{N_1}{R_1} = 0 \qquad S_4 = 4.166667$$

$$\frac{N_1 \cdot (N_1 - \mathrm{Index})}{N_1 + 1}$$

$$\frac{N_1 \cdot (N_1 - 0)}{N_1 + 1} = 4.166667$$

$$\frac{N_1 \cdot (N_1 - 1)}{N_1 + 1} = 3.333333$$

$$\frac{N_1 \cdot (N_1 - 2)}{N_1 + 1} = 2.5$$

$$\frac{N_1 \cdot (N_1 - 3)}{N_1 + 1} = 1.666667$$

Interval between consecutive S sub x's.

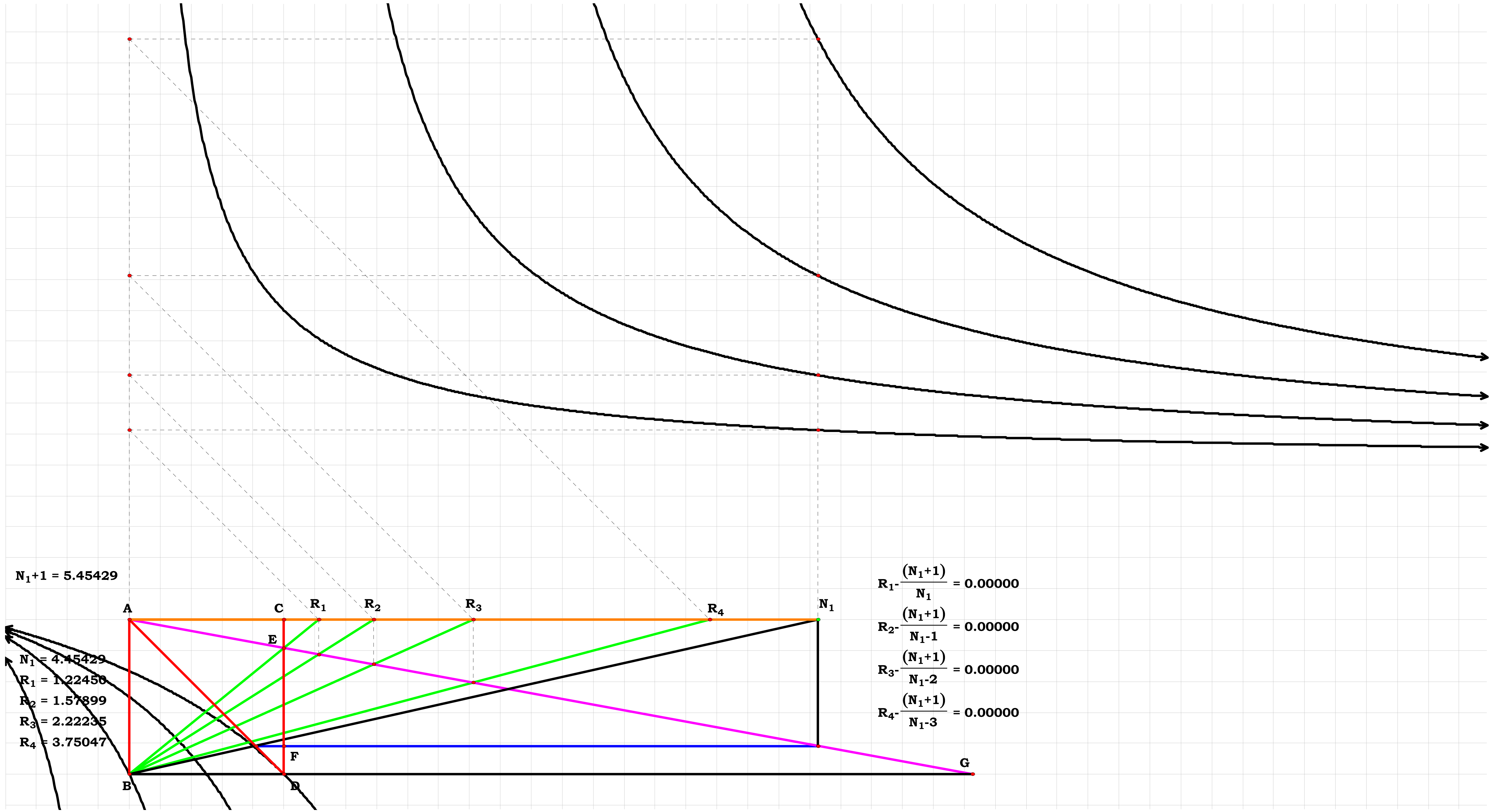
$$\frac{N_1}{N_1 + 1} = 0.833333 \qquad S_4 + \frac{N_1}{N_1 + 1} - N_1 = 0$$

Figure 6.

$$\underline{MN} := R_1 \cdot HJ \qquad \underline{a_1} := 1 - \frac{1 - MN}{MN} \qquad \frac{\mathrm{Index}}{N_1 + 1} \qquad a_1 = 0.166667$$

$$\frac{1}{N_1 + 1} = 0.166667 \qquad \frac{3}{N_1 + 1} = 0.5 \qquad \frac{1}{a_1} = 6$$

$$\frac{2}{N_1 + 1} = 0.333333 \qquad \frac{4}{N_1 + 1} = 0.666667$$



$N_1+1 = 5.45429$
A
C
R_1
R_2
R_3
R_4
N_1
E
F
B
D
G
$N_1 = 4.45429$
$R_1 = 1.22450$
$R_2 = 1.57899$
$R_3 = 2.22235$
$R_4 = 3.75047$
$R_1 - \frac{(N_1+1)}{N_1} = 0.00000$
$R_2 - \frac{(N_1+1)}{N_1-1} = 0.00000$
$R_3 - \frac{(N_1+1)}{N_1-2} = 0.00000$
$R_4 - \frac{(N_1+1)}{N_1-3} = 0.00000$

Figure 7, 8 and 9.

$\underline{AB} := 1$

$\underline{N_1} := 5$

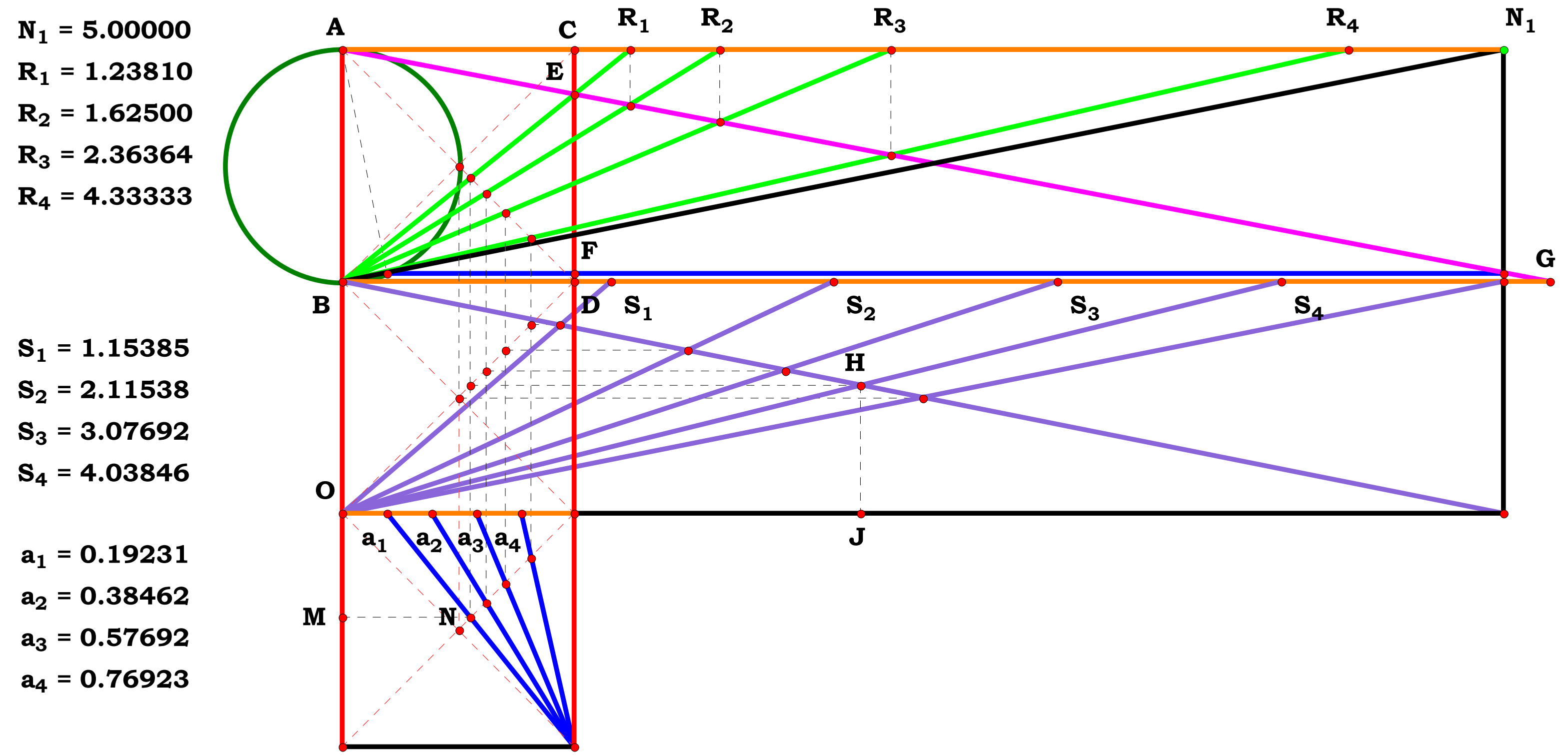


Figure 7

$$\underline{DF} := \frac{1}{N_1^{\,2}+1} \qquad \underline{BG} := \frac{N_1}{1-DF} \qquad \underline{CE} := \frac{1}{BG}$$

$$\underline{R_1} := \frac{1}{1-CE} \qquad R_1 - \frac{N_1^{\,2}+1}{N_1^{\,2}-N_1+1} = 0$$

$$\frac{N_1^{\,2}+1}{N_1^{\,2}+1-\text{Index}\cdot N_1}$$

$$\frac{N_1^{\,2}+1}{N_1^{\,2}+1-2\cdot N_1} = 1.625$$

$$\frac{N_1^{\,2}+1}{N_1^{\,2}+1-3\cdot N_1} = 2.363636$$

$$\frac{N_1^{\,2}+1}{N_1^{\,2}+1-4\cdot N_1} = 4.333333$$

Figure 8.

$$\underline{HJ} := \frac{1}{R_1+1} \qquad \underline{JO} := N_1\cdot HJ \qquad \underline{S_4} := \frac{JO}{1-HJ} \qquad S_4 - \frac{N_1}{R_1} = 0 \qquad S_4 = 4.038462$$

$$\frac{N_1^{\,3}+N_1-\text{Index}\cdot N_1^{\,2}}{N_1^{\,2}+1}$$

$$\frac{N_1^{\,3}+N_1-1\cdot N_1^{\,2}}{N_1^{\,2}+1} = 4.038462$$

$$\frac{N_1^{\,3}+N_1-2\cdot N_1^{\,2}}{N_1^{\,2}+1} = 3.076923$$

$$\frac{N_1^{\,3}+N_1-3\cdot N_1^{\,2}}{N_1^{\,2}+1} = 2.115385$$

$$\frac{N_1^{\,3}+N_1-4\cdot N_1^{\,2}}{N_1^{\,2}+1} = 1.153846$$

Interval between consecutive S sub x's.

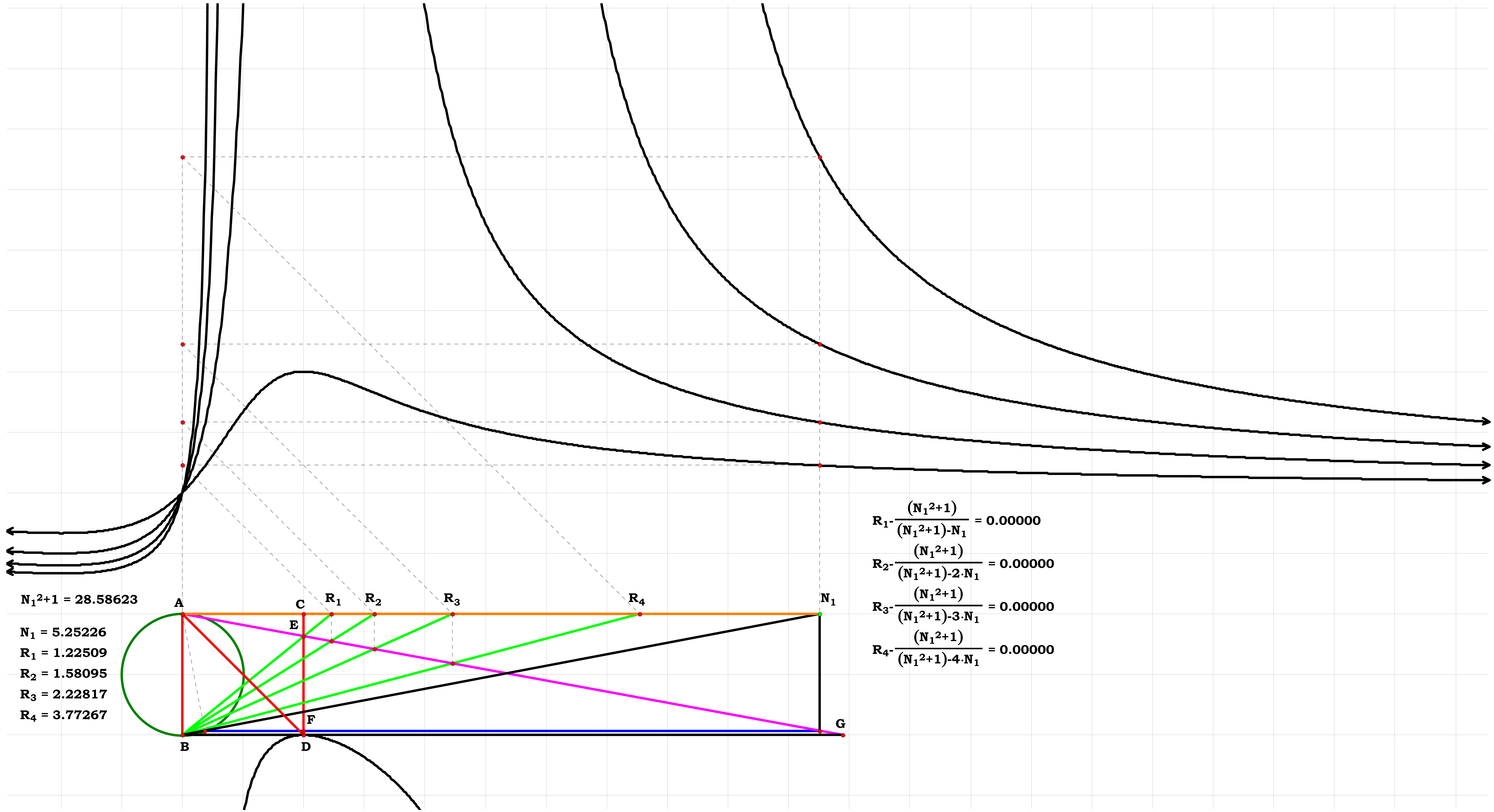
$$\frac{N_1^{\,2}}{N_1^{\,2}+1} = 0.961538 \qquad S_4 + \frac{N_1^{\,2}}{N_1^{\,2}+1} - N_1 = 0$$

Figure 9.

$$\underline{MN} := R_1\cdot HJ \qquad \underline{a_1} := 1 - \frac{1-MN}{MN} \qquad \frac{\text{Index}\cdot N_1}{N_1^{\,2}+1} \qquad a_1 = 0.192308$$

$$\frac{1\cdot N_1}{N_1^{\,2}+1} = 0.192308 \qquad \frac{3\cdot N_1}{N_1^{\,2}+1} = 0.576923 \qquad \frac{1}{a_1} = 5.2$$

$$\frac{2\cdot N_1}{N_1^{\,2}+1} = 0.384615 \qquad \frac{4\cdot N_1}{N_1^{\,2}+1} = 0.769231$$


$N_1{}^2+1 = 28.58623$
$N_1 = 5.25226$
$R_1 = 1.22509$
$R_2 = 1.58095$
$R_3 = 2.22817$
$R_4 = 3.77267$
A
B
C
D
E
F
G
R_1
R_2
R_3
R_4
N_1
$R_1 - \frac{(N_1{}^2+1)}{(N_1{}^2+1)-N_1} = 0.00000$
$R_2 - \frac{(N_1{}^2+1)}{(N_1{}^2+1)-2 \cdot N_1} = 0.00000$
$R_3 - \frac{(N_1{}^2+1)}{(N_1{}^2+1)-3 \cdot N_1} = 0.00000$
$R_4 - \frac{(N_1{}^2+1)}{(N_1{}^2+1)-4 \cdot N_1} = 0.00000$

Conclusion of the 9 plate series.

It goes without saying that I never demonstrate all of the possible constructions in most of my work. That is not the job of presenting a Tour de Force in Philosophy. A Tour de Force presents a method of complete induction, not a complete set of individual results, which is factually impossible. The argument that a Tour de Force is impossible because someone did not mention some particular item is fallacious; it is like saying that someone did not teach mathematics because they never mentioned some particular number. That argument works only on someone who is not overly bright, everyone starts thinking using enumeration, one either evolves to thinking in terms of definition, or they do not. When they do not, they are condemned to a life of contradiction. How would you discern the difference between heaven and hell?

A grammar book, founded upon the unit concept of a thing, is itself an example of a Tour de Force in Philosophy. Factually, there is only one Tour de Force in Philosophy possible, and it was mentioned a very long time ago.

What does the parable of, If thy eye be single, your whole body would be full of light mean? Does it not mean, that there is but one and only one standard that psychology is based on? That is a biological fact.

$\frac{N_1}{b_1} = 5.20000$

$\frac{N_1}{b_2} = 4.40000$

$\frac{N_1}{b_3} = 3.60000$

$\frac{N_1}{b_4} = 2.80000$

$\frac{N_1}{R_1} = 4.20000$

$\frac{N_1}{R_2} = 3.40000$

$\frac{N_1}{R_3} = 2.60000$

$\frac{N_1}{R_4} = 1.80000$

$\frac{N_1}{S_1} = 2.77778$

$\frac{N_1}{S_2} = 1.92308$

$\frac{N_1}{S_3} = 1.47059$

$\frac{N_1}{S_4} = 1.19048$

$\frac{N_1}{a_1} = 31.25000$

$\frac{N_1}{a_2} = 15.62500$

$\frac{N_1}{a_3} = 10.41667$

$\frac{N_1}{a_4} = 7.81250$

$b_1 = 0.96154$

$b_2 = 1.13636$

$b_3 = 1.38889$

$b_4 = 1.78571$

$N_1 = 5.00000$

$R_1 = 1.19048$

$R_2 = 1.47059$

$R_3 = 1.92308$

$R_4 = 2.77778$

$S_1 = 1.80000$

$S_2 = 2.60000$

$S_3 = 3.40000$

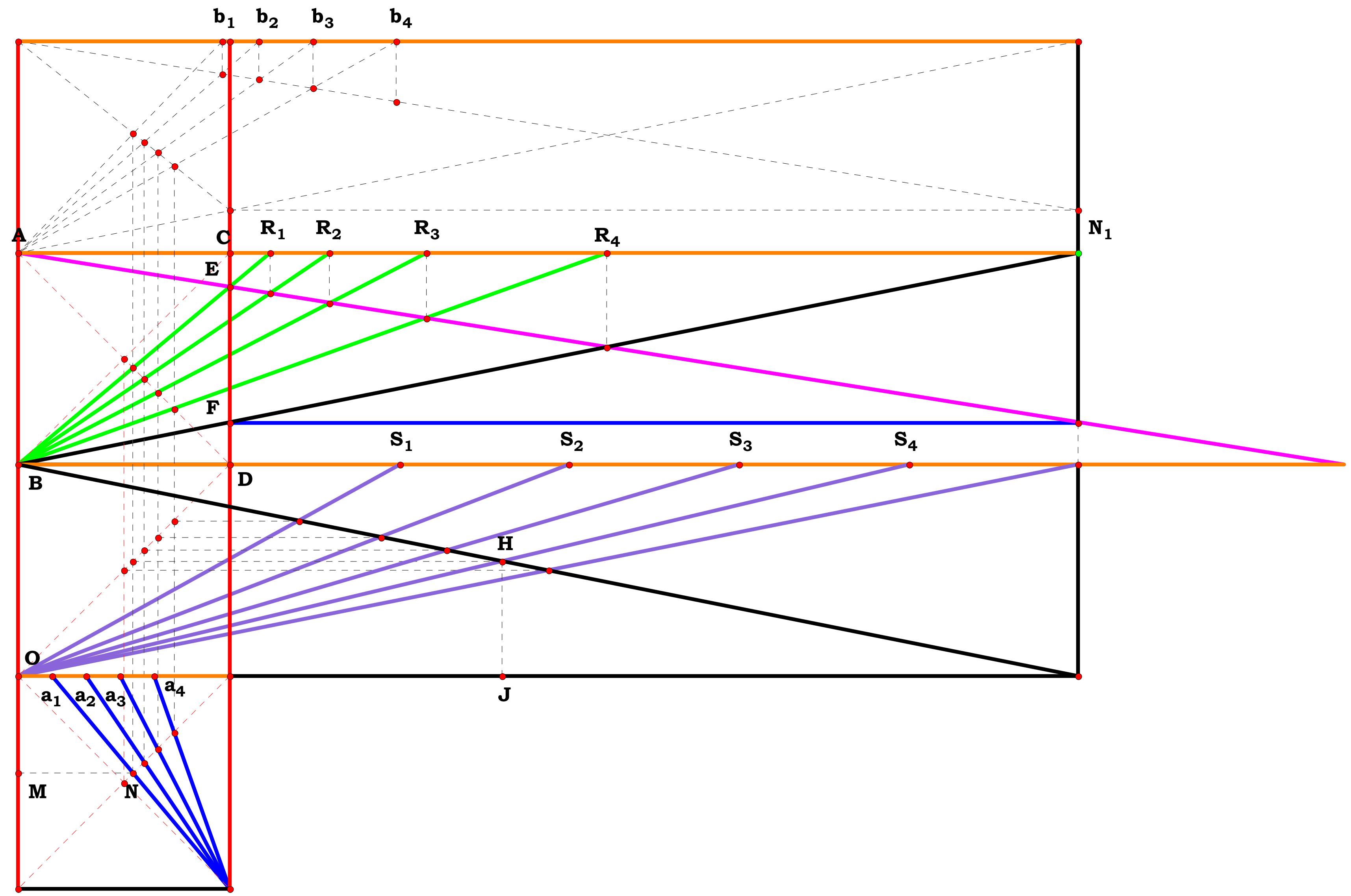
$S_4 = 4.20000$

$a_1 = 0.16000$

$a_2 = 0.32000$

$a_3 = 0.48000$

$a_4 = 0.64000$



Fractional Series Introduction 3

$$AB := 1$$
$$N_1 := 4.76977$$
$$N_2 := 3.17324$$
$$N_3 := .56832$$

$$R_4 := \frac{N_1}{N_2} \qquad AO := 1 + N_3 \qquad EH := \frac{N_1 - R_4}{N_1}$$

$$R_5 := \frac{AO \cdot R_4}{EH + N_3} \qquad R_6 := \frac{AO \cdot R_5}{\frac{N_1 - R_5}{N_1} + N_3}$$

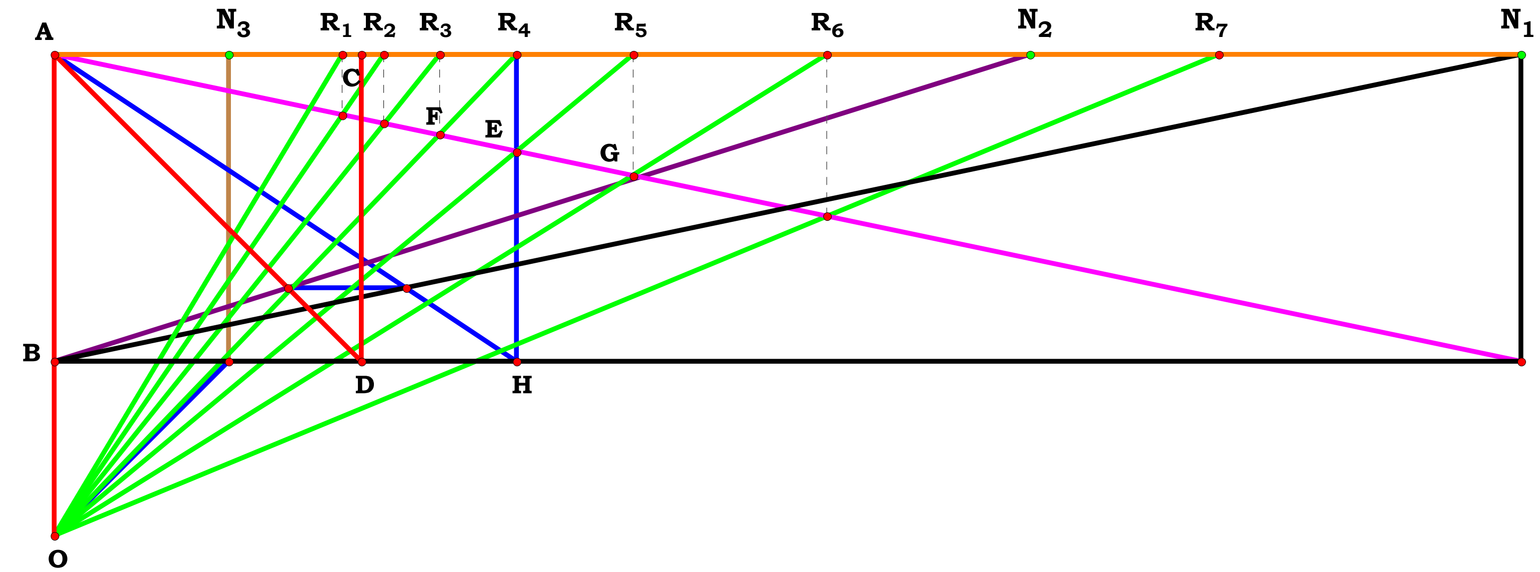
$$R_4 - \frac{N_1 \cdot (N_3 + 1)}{N_2 + N_2 \cdot N_3} = 0 \qquad R_5 - \frac{N_1 \cdot (N_3 + 1)}{N_2 + N_2 \cdot N_3 - 1} = 0$$

$$R_6 - \frac{N_1 \cdot (N_3 + 1)}{N_2 + N_2 \cdot N_3 - 2} = 0 \qquad \frac{N_1 \cdot (N_3 + 1)}{N_2 + N_2 \cdot N_3 + 1} = 1.251624$$

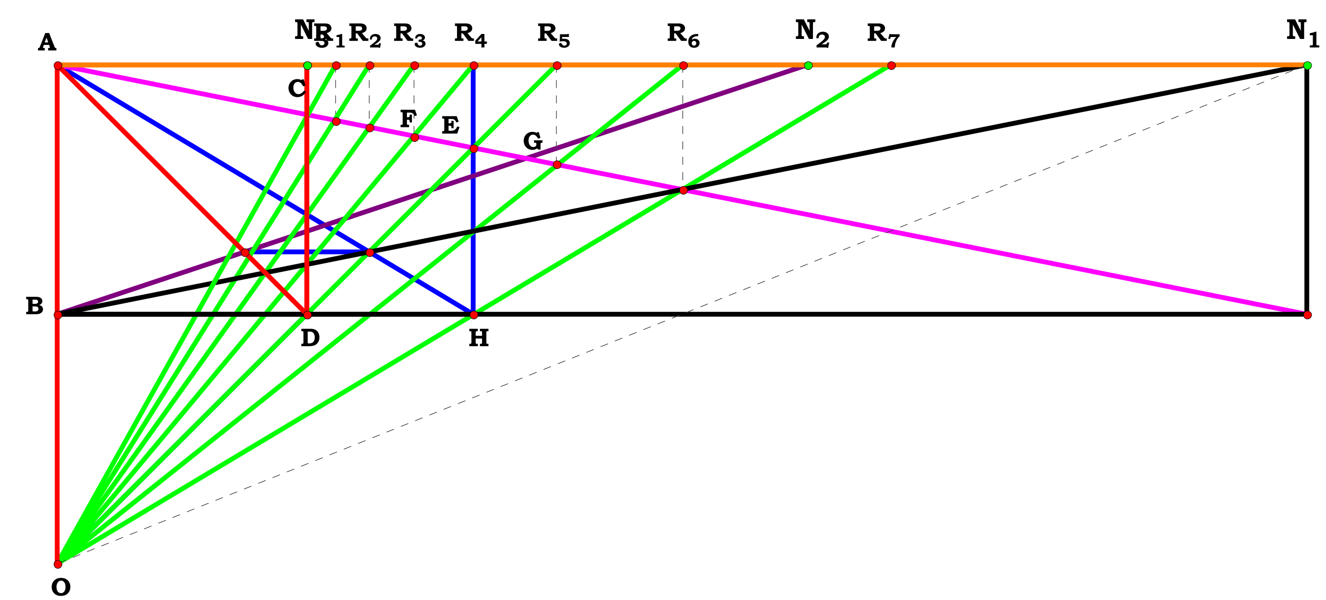
$$\frac{N_1 \cdot (N_3 + 1)}{N_2 + N_2 \cdot N_3 + 2} = 1.072222 \qquad \frac{N_1 \cdot (N_3 + 1)}{N_2 + N_2 \cdot N_3 + 3} = 0.937802$$

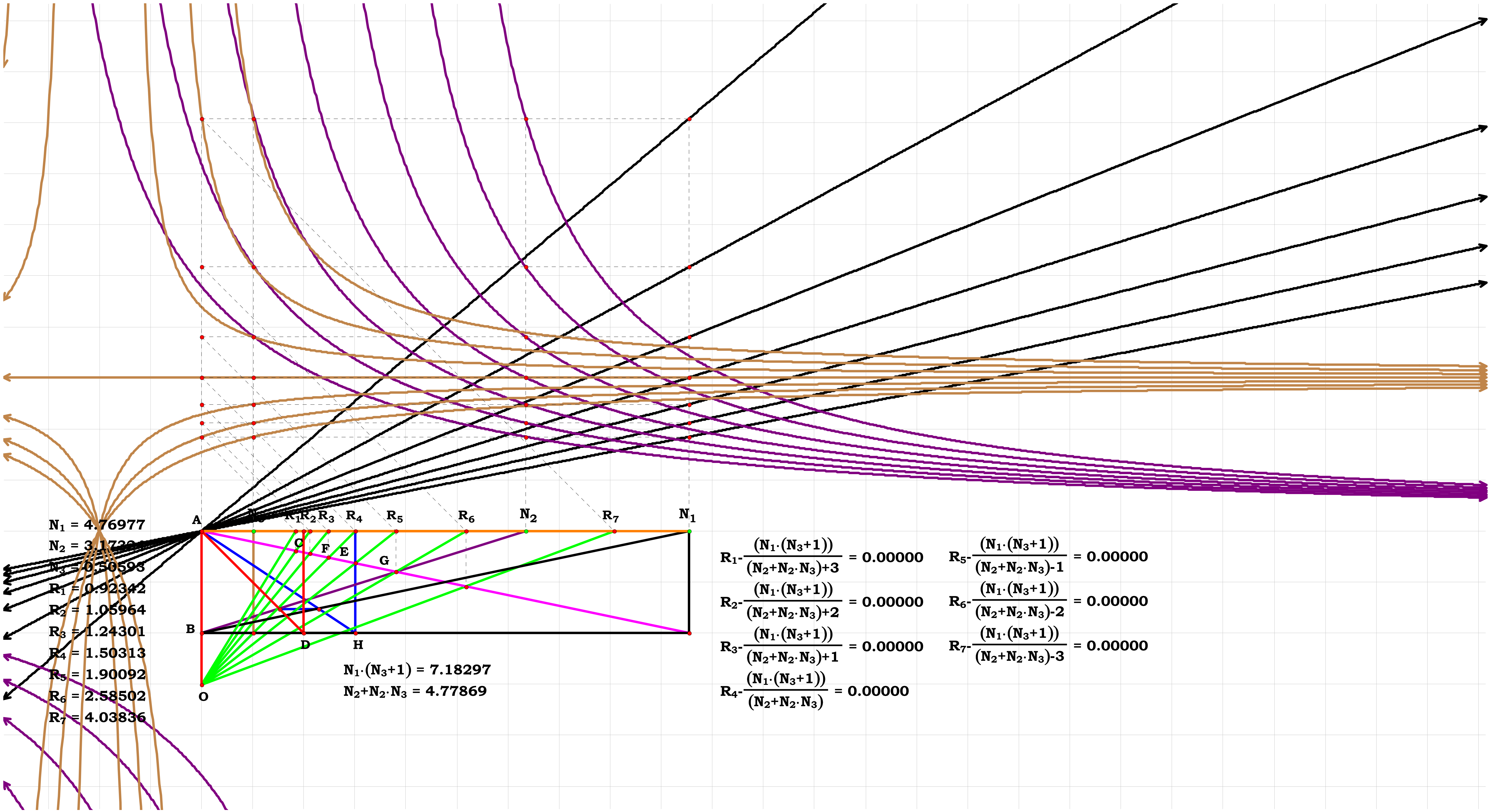
$$\frac{N_1 \cdot (N_3 + 1)}{N_2 + N_2 \cdot N_3 - 3} = 3.784435 \qquad \frac{N_1 \cdot (N_3 + 1)}{N_2 + N_2 \cdot N_3 - \text{Index}}$$

$N_1 = 4.76977$
$N_2 = 3.17324$
$N_3 = 0.56832$
$R_1 = 0.93780$
$R_2 = 1.07222$
$R_3 = 1.25163$
$R_4 = 1.50313$
$R_5 = 1.88112$
$R_6 = 2.51308$
$R_7 = 3.78447$



$N_1 = 5.00000$
$N_2 = 3.00000$
$N_3 = 1.00000$
$R_1 = 1.11111$
$R_2 = 1.25000$
$R_3 = 1.42857$
$R_4 = 1.66667$
$R_5 = 2.00000$
$R_6 = 2.50000$
$R_7 = 3.33333$





A
N3
R1
R2
R3
R4
R5
R6
N2
R7
N1
C
F
E
G
B
D
H
O
N1 = 4.76977
N2 = 3.173
N3 = 0.50593
R1 = 0.92342
R2 = 1.05964
R3 = 1.24301
R4 = 1.50313
R5 = 1.90092
R6 = 2.58502
R7 = 4.03836
N1·(N3+1) = 7.18297
N2+N2·N3 = 4.77869
R1-(N1·(N3+1))/((N2+N2·N3)+3) = 0.00000
R2-(N1·(N3+1))/((N2+N2·N3)+2) = 0.00000
R3-(N1·(N3+1))/((N2+N2·N3)+1) = 0.00000
R4-(N1·(N3+1))/((N2+N2·N3)) = 0.00000
R5-(N1·(N3+1))/((N2+N2·N3)-1) = 0.00000
R6-(N1·(N3+1))/((N2+N2·N3)-2) = 0.00000
R7-(N1·(N3+1))/((N2+N2·N3)-3) = 0.00000

$AB := 1$

$N_1 := 3.81433$

$N_2 := 6$

Fractional Series Introduction 4

$$DE := \frac{1}{N_1} \quad BF := \frac{N_2}{1 - DE} \quad CG := \frac{1}{BF}$$

$$R_1 := \frac{1}{1 - CG}$$

$$R_1 - \frac{N_1 \cdot N_2}{N_1 \cdot N_2 - (N_1 - 1)} = 0$$

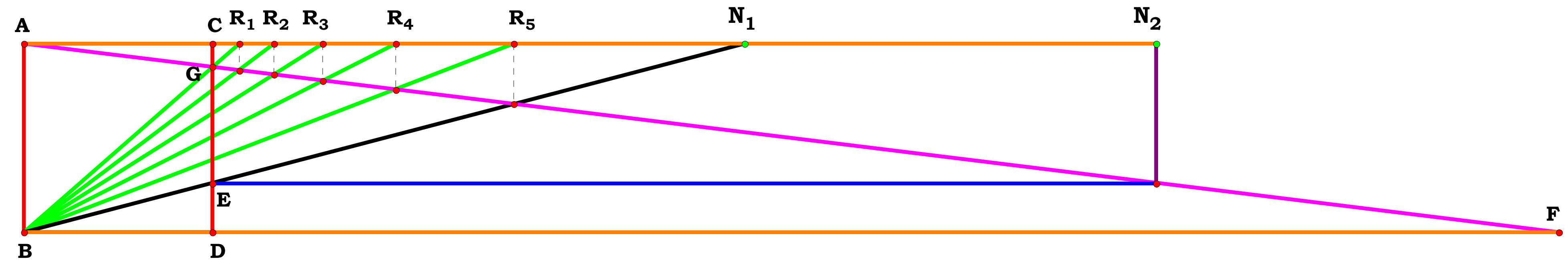
$$\frac{N_1 \cdot N_2}{N_1 \cdot N_2 - \text{Index} \cdot (N_1 - 1)}$$

$$\frac{N_1 \cdot N_2}{N_1 \cdot N_2 - (N_1 - 1) \cdot 2} = 1.326161$$

$$\frac{N_1 \cdot N_2}{N_1 \cdot N_2 - (N_1 - 1) \cdot 3} = 1.584574$$

$$\frac{N_1 \cdot N_2}{N_1 \cdot N_2 - (N_1 - 1) \cdot 4} = 1.968067$$

$$\frac{N_1 \cdot N_2}{N_1 \cdot N_2 - (N_1 - 1) \cdot 5} = 2.596451$$



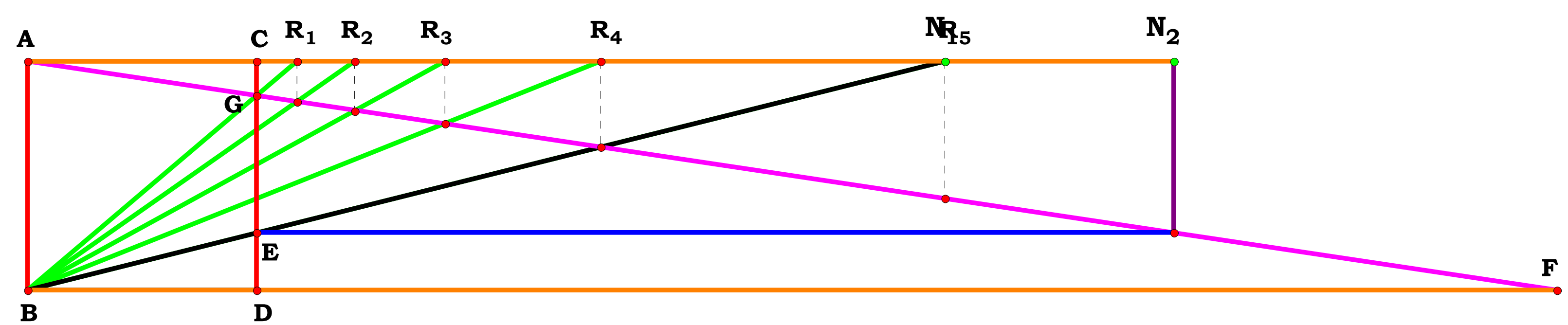
$N_1 = 3.81433$ $R_1 = 1.14021$

$N_2 = 6.00000$ $R_2 = 1.32616$

$R_3 = 1.58457$

$R_4 = 1.96807$

$R_5 = 2.59645$



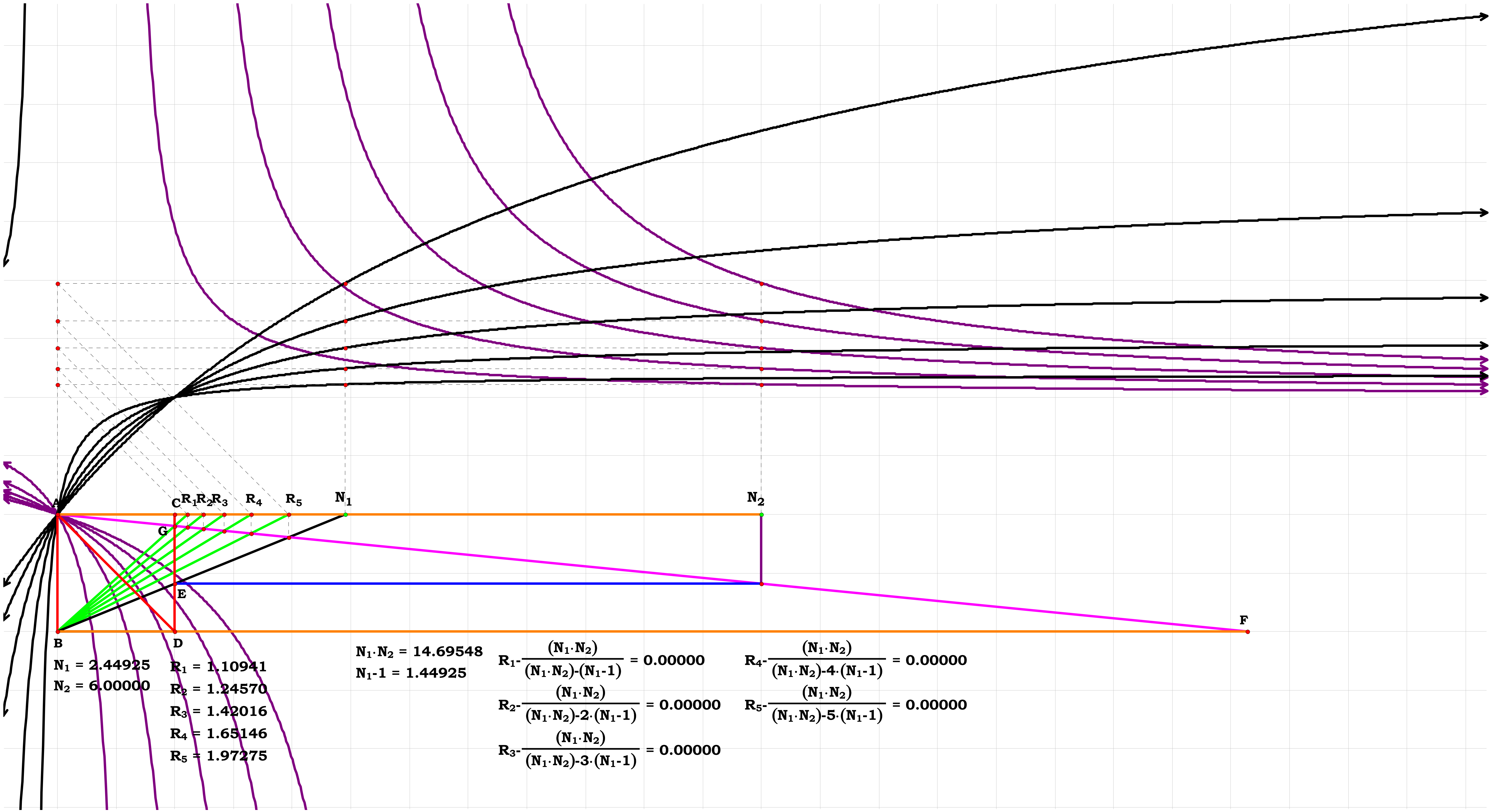
$N_1 = 4.00000$ $R_1 = 1.17647$

$N_2 = 5.00000$ $R_2 = 1.42857$

$R_3 = 1.81818$

$R_4 = 2.50000$

$R_5 = 4.00000$


A
B
C
D
E
F
G
R1 R2 R3 R4 R5
N1
N2
N1 = 2.44925
N2 = 6.00000
R1 = 1.10941
R2 = 1.24570
R3 = 1.42016
R4 = 1.65146
R5 = 1.97275
N1·N2 = 14.69548
N1-1 = 1.44925
R1-(N1·N2)/((N1·N2)-(N1-1)) = 0.00000
R2-(N1·N2)/((N1·N2)-2·(N1-1)) = 0.00000
R3-(N1·N2)/((N1·N2)-3·(N1-1)) = 0.00000
R4-(N1·N2)/((N1·N2)-4·(N1-1)) = 0.00000
R5-(N1·N2)/((N1·N2)-5·(N1-1)) = 0.00000

$AB := 1$

$N_1 := 4.37776$

$N_2 := 3.10140$

$N_3 := 4.98355$

Fractional Series Introduction 5

$$DF := \frac{1}{N_1} \qquad BG := \frac{N_2}{1 - DF} \qquad BH := \frac{N_3}{1 - DF}$$

$$CE := \frac{1}{BG} \qquad AJ := \frac{1}{1 - CE} \qquad R_1 := \frac{BH \cdot AJ}{BH + AJ}$$

$$R_1 - \frac{N_1 \cdot N_2 \cdot N_3}{N_1 \cdot N_2 \cdot N_3 + (N_1 - 1) \cdot (N_2 - N_3)} = 0$$

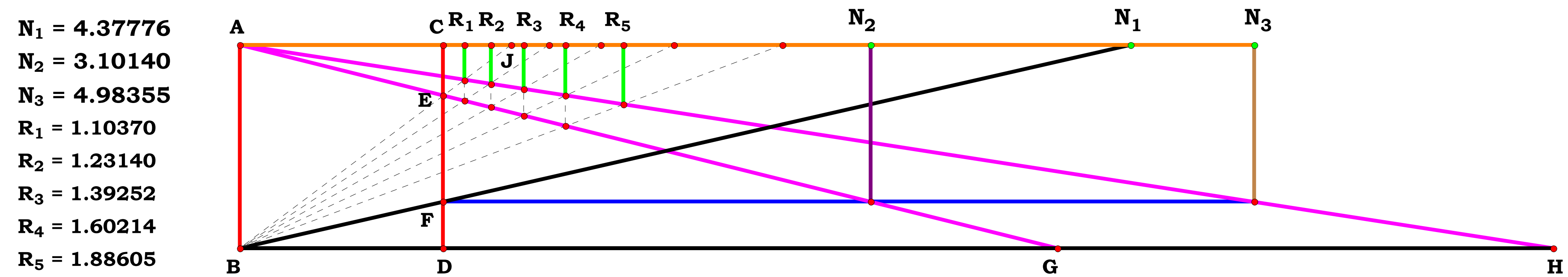
$$\frac{N_1 \cdot N_2 \cdot N_3}{N_1 \cdot N_2 \cdot N_3 + Index \cdot (N_1 - 1) \cdot (N_2 - N_3)}$$

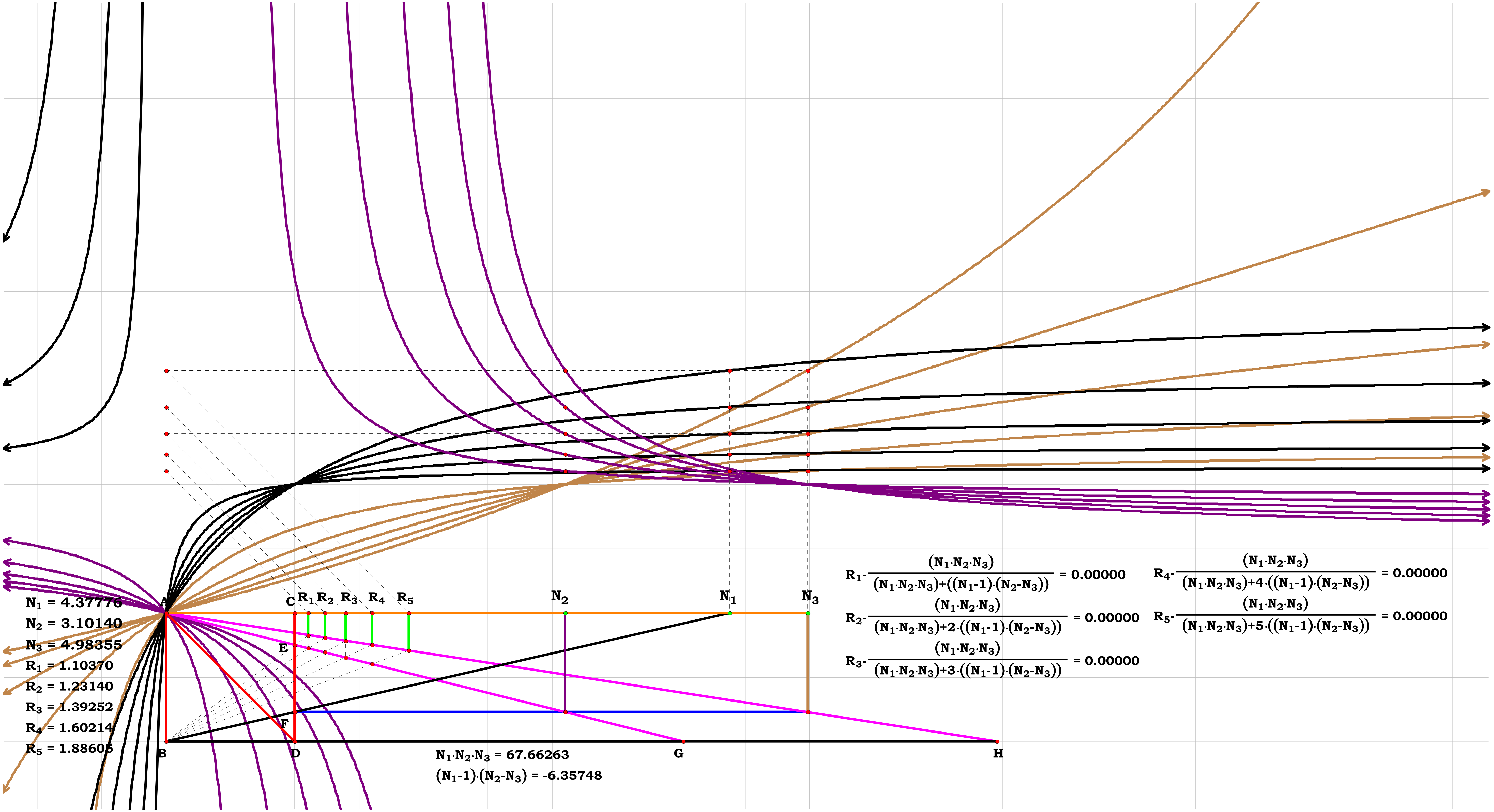
$$\frac{N_1 \cdot N_2 \cdot N_3}{N_1 \cdot N_2 \cdot N_3 + 2 \cdot (N_1 - 1) \cdot (N_2 - N_3)} = 1.2314$$

$$\frac{N_1 \cdot N_2 \cdot N_3}{N_1 \cdot N_2 \cdot N_3 + 3 \cdot (N_1 - 1) \cdot (N_2 - N_3)} = 1.392514$$

$$\frac{N_1 \cdot N_2 \cdot N_3}{N_1 \cdot N_2 \cdot N_3 + 4 \cdot (N_1 - 1) \cdot (N_2 - N_3)} = 1.602134$$

$$\frac{N_1 \cdot N_2 \cdot N_3}{N_1 \cdot N_2 \cdot N_3 + 5 \cdot (N_1 - 1) \cdot (N_2 - N_3)} = 1.886048$$





A
B
C
D
E
F
G
H
R_1 R_2 R_3 R_4 R_5
N_2
N_1
N_3
$N_1 = 4.37776$
$N_2 = 3.10140$
$N_3 = 4.98355$
$R_1 = 1.10370$
$R_2 = 1.23140$
$R_3 = 1.39252$
$R_4 = 1.60214$
$R_5 = 1.88605$
$N_1 \cdot N_2 \cdot N_3 = 67.66263$
$(N_1-1) \cdot (N_2-N_3) = -6.35748$
$R_1 - \frac{(N_1 \cdot N_2 \cdot N_3)}{(N_1 \cdot N_2 \cdot N_3)+((N_1-1) \cdot (N_2-N_3))} = 0.00000$
$R_2 - \frac{(N_1 \cdot N_2 \cdot N_3)}{(N_1 \cdot N_2 \cdot N_3)+2 \cdot ((N_1-1) \cdot (N_2-N_3))} = 0.00000$
$R_3 - \frac{(N_1 \cdot N_2 \cdot N_3)}{(N_1 \cdot N_2 \cdot N_3)+3 \cdot ((N_1-1) \cdot (N_2-N_3))} = 0.00000$
$R_4 - \frac{(N_1 \cdot N_2 \cdot N_3)}{(N_1 \cdot N_2 \cdot N_3)+4 \cdot ((N_1-1) \cdot (N_2-N_3))} = 0.00000$
$R_5 - \frac{(N_1 \cdot N_2 \cdot N_3)}{(N_1 \cdot N_2 \cdot N_3)+5 \cdot ((N_1-1) \cdot (N_2-N_3))} = 0.00000$

$AB := 1$

$N_1 := 2.87497$

$N_2 := 1.79901$

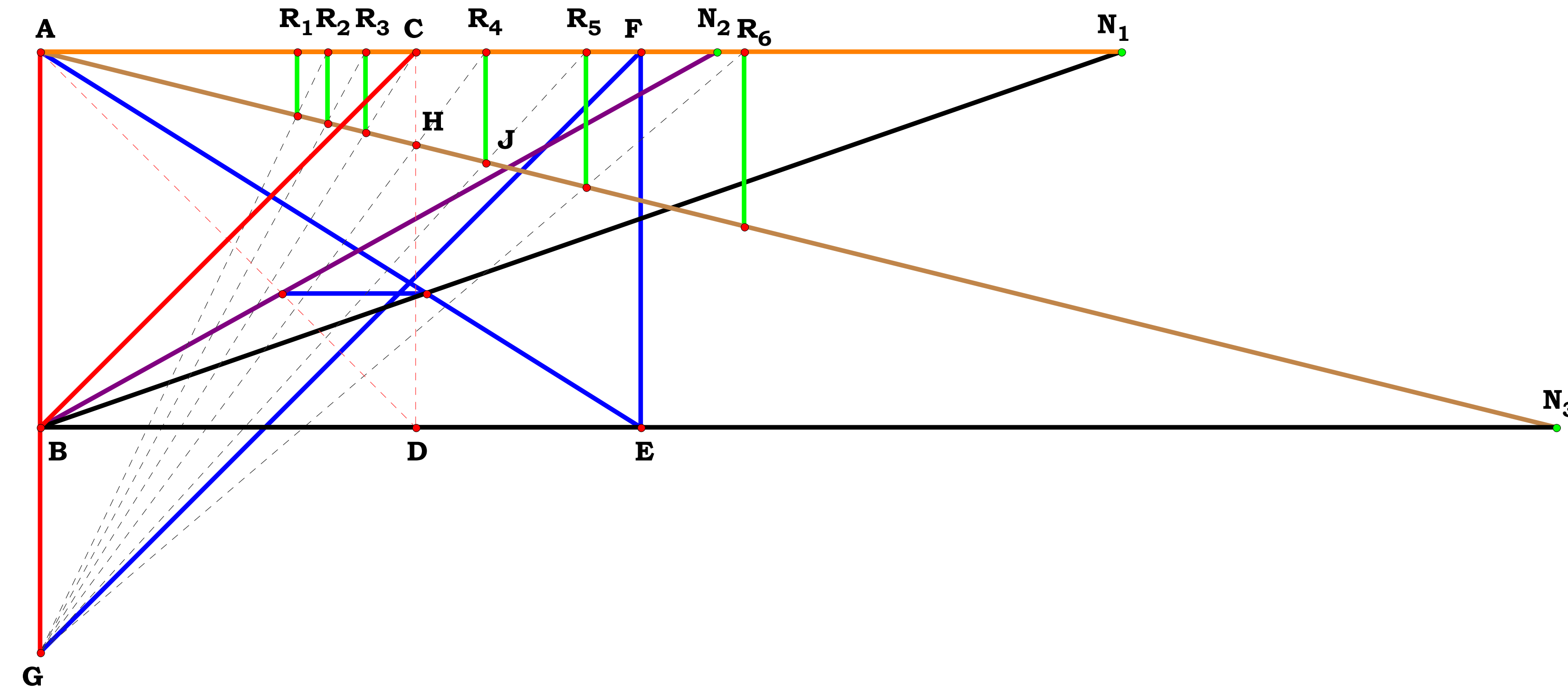
$N_3 := 4.03249$

Fractional Series Book 1 1

$$AF := \frac{N_1}{N_2} \qquad CH := \frac{1}{N_3} \qquad AG := AF$$

$$R_4 := \frac{AG}{AG - CH} \qquad JR_4 := \frac{R_4}{N_3} \qquad R_5 := \frac{AG \cdot R_4}{AG - JR_4}$$

$N_1 = 2.87497$
$N_2 = 1.79901$
$N_3 = 4.03249$
$R_1 = 0.68235$
$R_2 = 0.76315$
$R_3 = 0.86567$
$R_4 = 1.18368$
$R_5 = 1.45002$
$R_6 = 1.87102$



One can walk each value down, however, these three iterations produce:

$$AB - \frac{N_1 \cdot N_3}{N_1 \cdot N_3} = 0 \qquad R_4 - \frac{N_1 \cdot N_3}{N_1 \cdot N_3 - N_2} = 0 \qquad R_5 - \frac{N_1 \cdot N_3}{N_1 \cdot N_3 - 2 \cdot N_2} = 0$$

giving a sequence:

$$\frac{N_1 \cdot N_3}{N_1 \cdot N_3 - N_2 \cdot Index} \qquad R_1 := \frac{N_1 \cdot N_3}{N_1 \cdot N_3 - N_2 \cdot -3}$$

$$R_2 := \frac{N_1 \cdot N_3}{N_1 \cdot N_3 - N_2 \cdot -2} \qquad R_3 := \frac{N_1 \cdot N_3}{N_1 \cdot N_3 - N_2 \cdot -1}$$

$$AB - \frac{N_1 \cdot N_3}{N_1 \cdot N_3} = 0 \qquad R_4 - \frac{N_1 \cdot N_3}{N_1 \cdot N_3 - N_2} = 0$$

$$R_5 - \frac{N_1 \cdot N_3}{N_1 \cdot N_3 - N_2 \cdot 2} = 0 \qquad R_6 := \frac{N_1 \cdot N_3}{N_1 \cdot N_3 - N_2 \cdot 3}$$

$R_1 = 0.682347$ $\qquad R_4 = 1.18368$

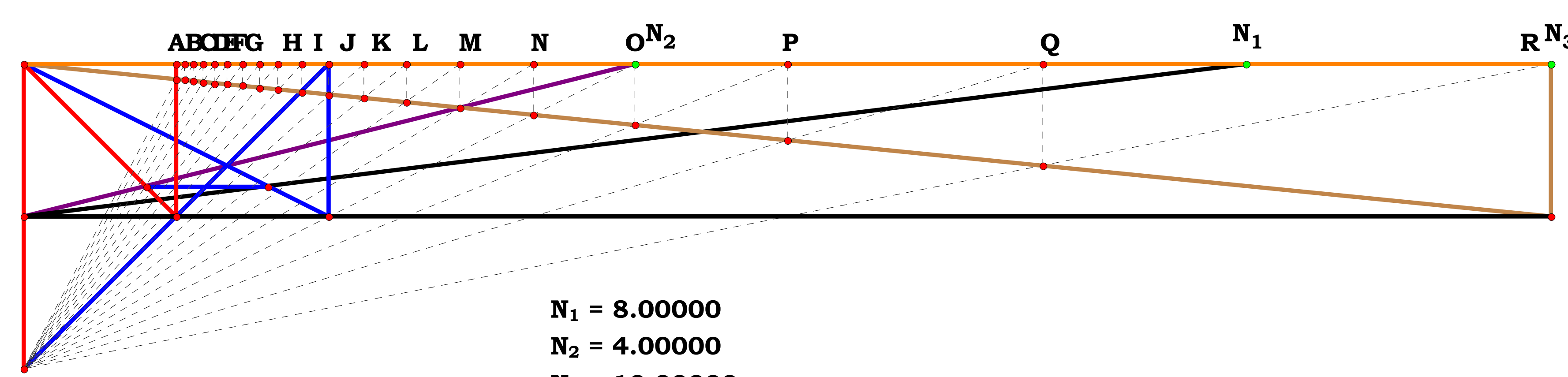
$R_2 = 0.763153$ $\qquad R_4 = 1.18368$

$R_3 = 0.865668$ $\qquad R_6 = 1.871014$

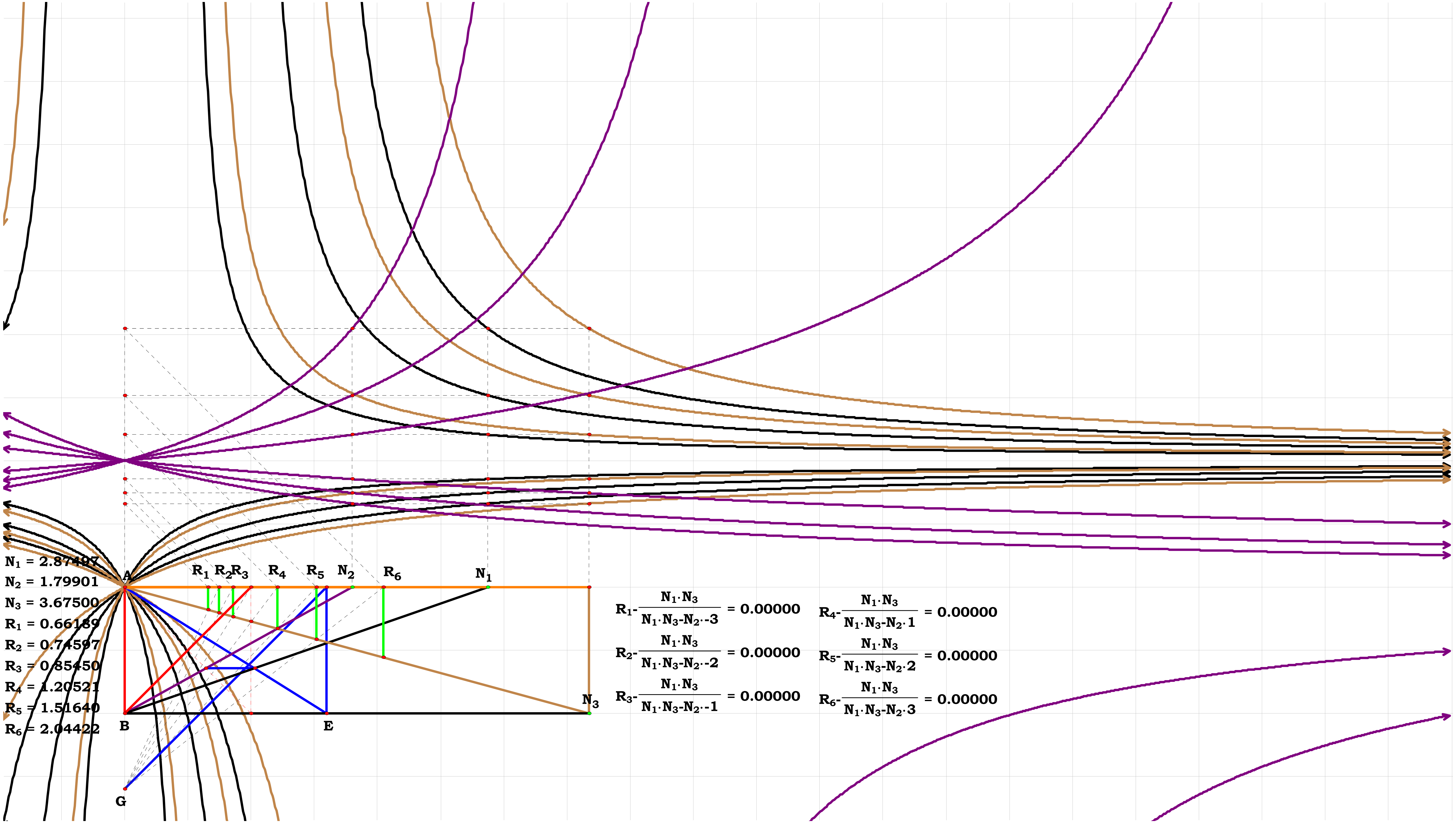
A = 1.05263
B = 1.11111
C = 1.17647
D = 1.25000
E = 1.33333
F = 1.42857
G = 1.53846

H = 1.66667
I = 1.81818
J = 2.00000
K = 2.22222
L = 2.50000
M = 2.85714
N = 3.33333

O = 4.00000
P = 5.00000
Q = 6.66667
R = 10.00000



$N_1 = 8.00000$
$N_2 = 4.00000$
$N_3 = 10.00000$



N_1 = 2.87497
N_2 = 1.79901
N_3 = 3.67500
R_1 = 0.66189
R_2 = 0.74597
R_3 = 0.85450
R_4 = 1.20521
R_5 = 1.51640
R_6 = 2.04422
A
B
E
G
R_1
R_2
R_3
R_4
R_5
N_2
R_6
N_1
N_3
$R_1 - \frac{N_1 \cdot N_3}{N_1 \cdot N_3 - N_2 \cdot -3} = 0.00000$
$R_2 - \frac{N_1 \cdot N_3}{N_1 \cdot N_3 - N_2 \cdot -2} = 0.00000$
$R_3 - \frac{N_1 \cdot N_3}{N_1 \cdot N_3 - N_2 \cdot -1} = 0.00000$
$R_4 - \frac{N_1 \cdot N_3}{N_1 \cdot N_3 - N_2 \cdot 1} = 0.00000$
$R_5 - \frac{N_1 \cdot N_3}{N_1 \cdot N_3 - N_2 \cdot 2} = 0.00000$
$R_6 - \frac{N_1 \cdot N_3}{N_1 \cdot N_3 - N_2 \cdot 3} = 0.00000$

Fractional Series Book 1 3

$$AB := 1$$
$$N_1 := 1.73988$$
$$N_2 := 2.18406$$
$$N_3 := 3.49697$$

$$DE := \frac{1}{N_3} \qquad BK := \frac{N_2}{1 - DE} \qquad CF := \frac{1}{BK}$$

$$R_4 := \frac{N_1}{N_1 - CF} \qquad GR_4 := \frac{R_4 \cdot (N_3 - 1)}{N_2 \cdot N_3} \qquad R_5 := \frac{N_1 \cdot R_4}{N_1 - GR_4}$$

$$CF - \frac{N_3 - 1}{N_2 \cdot N_3} = 0$$

By interpolation gives:

$$\frac{N_1 \cdot N_2 \cdot N_3}{N_1 \cdot N_2 \cdot N_3 - \text{Index} \cdot (N_3 - 1)} \qquad R_4 - \frac{N_1 \cdot N_2 \cdot N_3}{N_1 \cdot N_2 \cdot N_3 - N_3 + 1} = 0$$

$$R_5 - \frac{N_1 \cdot N_2 \cdot N_3}{N_1 \cdot N_2 \cdot N_3 - 2 \cdot N_3 + 2} = 0 \qquad R_1 := \frac{N_1 \cdot N_2 \cdot N_3}{N_1 \cdot N_2 \cdot N_3 - (N_3 - 1) \cdot -3}$$

$$R_2 := \frac{N_1 \cdot N_2 \cdot N_3}{N_1 \cdot N_2 \cdot N_3 - (N_3 - 1) \cdot -2} \qquad R_3 := \frac{N_1 \cdot N_2 \cdot N_3}{N_1 \cdot N_2 \cdot N_3 - (N_3 - 1) \cdot -1}$$

$$AB - \frac{N_1 \cdot N_2 \cdot N_3}{N_1 \cdot N_2 \cdot N_3 - (N_3 - 1) \cdot 0} = 0 \qquad R_4 - \frac{N_1 \cdot N_2 \cdot N_3}{N_1 \cdot N_2 \cdot N_3 - (N_3 - 1) \cdot 1} = 0$$

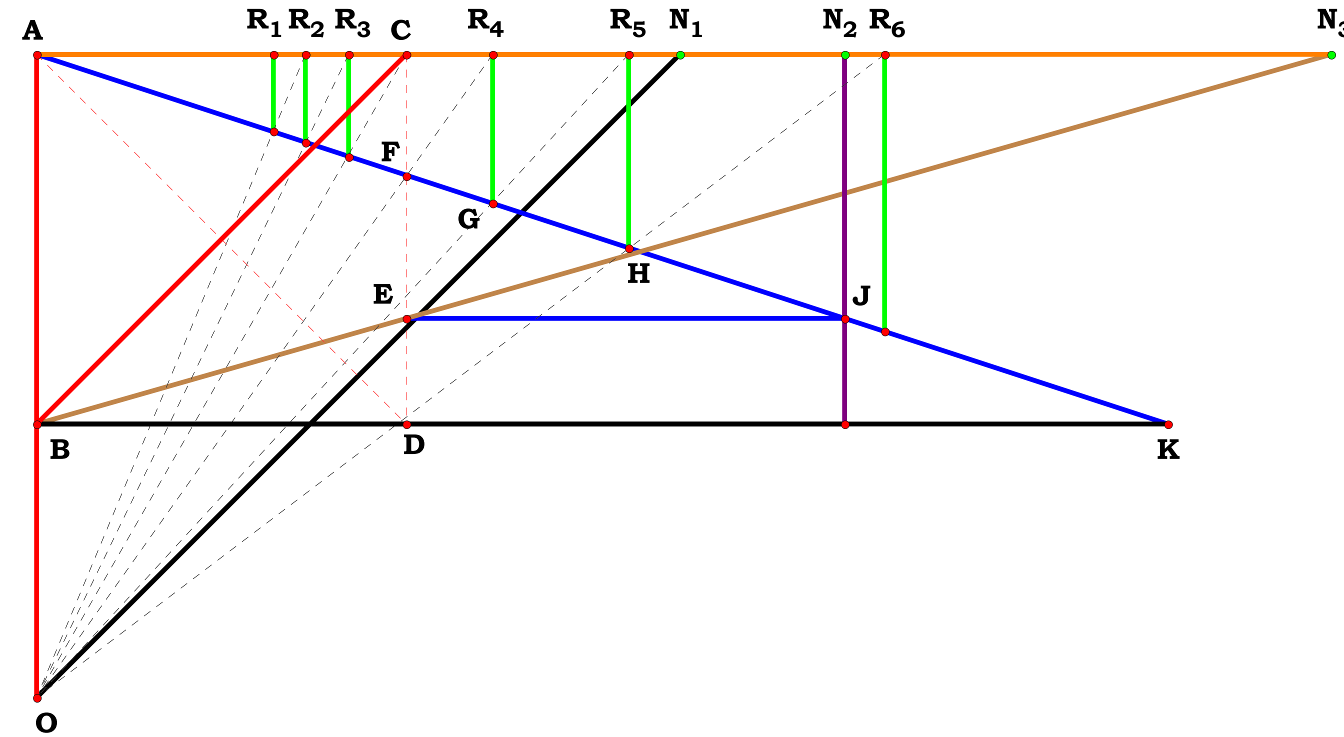
$$R_5 - \frac{N_1 \cdot N_2 \cdot N_3}{N_1 \cdot N_2 \cdot N_3 - (N_3 - 1) \cdot 2} = 0 \qquad R_6 := \frac{N_1 \cdot N_2 \cdot N_3}{N_1 \cdot N_2 \cdot N_3 - (N_3 - 1) \cdot 3}$$

$R_1 = 0.639503$ $\quad R_4 = 1.231383$

$R_2 = 0.726845$ $\quad R_5 = 1.602075$

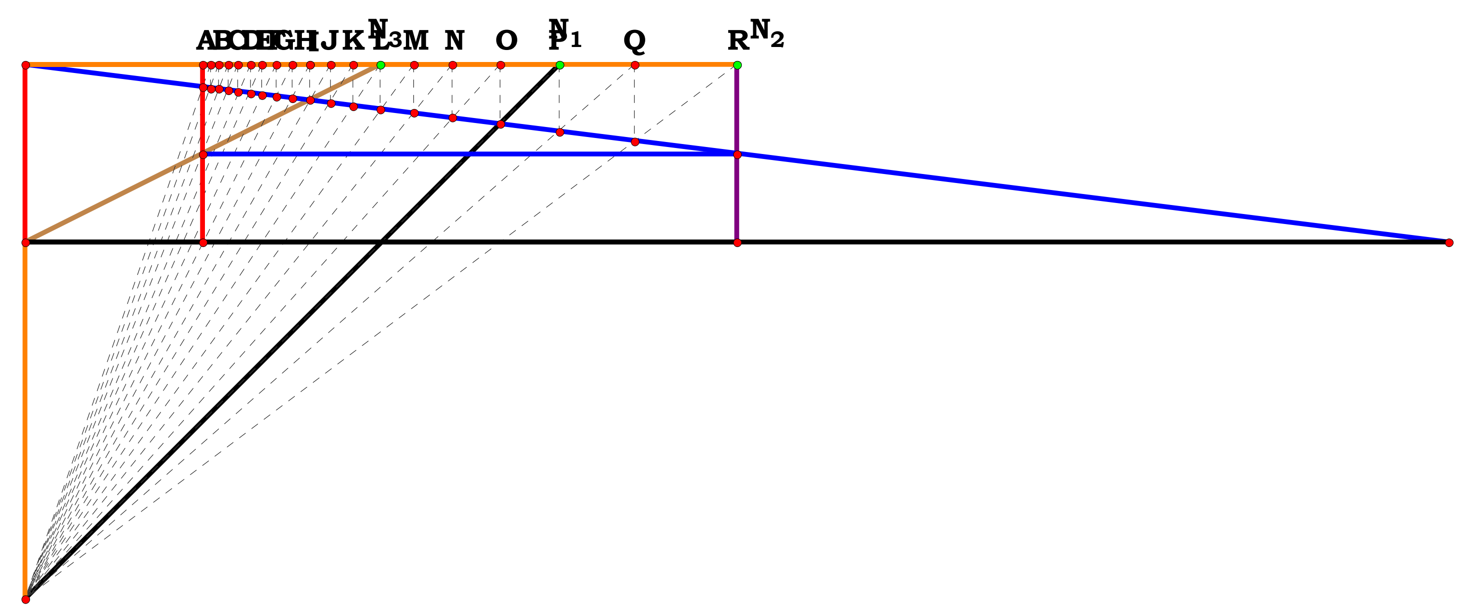
$R_3 = 0.841818$ $\quad R_6 = 2.292074$

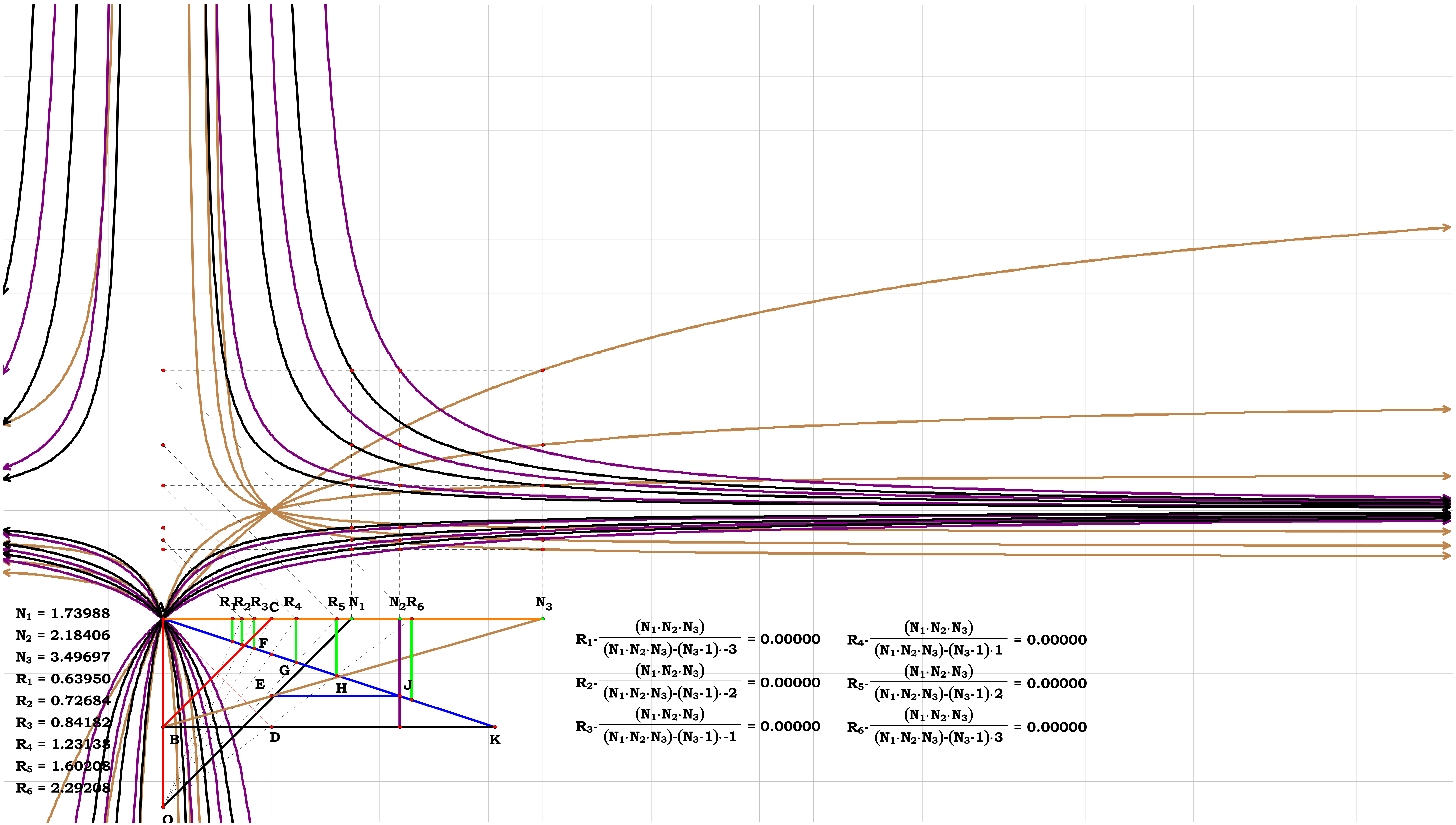
$N_1 = 1.73988$
$N_2 = 2.18406$
$N_3 = 3.49697$
$R_1 = 0.63950$
$R_2 = 0.72684$
$R_3 = 0.84182$
$R_4 = 1.23138$
$R_5 = 1.60208$
$R_6 = 2.29208$



A = 1.04348	G = 1.41176	M = 2.18182
B = 1.09091	H = 1.50000	N = 2.40000
C = 1.14286	I = 1.60000	O = 2.66667
D = 1.20000	J = 1.71429	P = 3.00000
E = 1.26316	K = 1.84615	Q = 3.42857
F = 1.33333	L = 2.00000	R = 4.00000

$N_1 = 3.00000$
$N_2 = 4.00000$
$N_3 = 2.00000$





$N_1 = 1.73988$

$N_2 = 2.18406$

$N_3 = 3.49697$

$R_1 = 0.63950$

$R_2 = 0.72684$

$R_3 = 0.84182$

$R_4 = 1.23138$

$R_5 = 1.60208$

$R_6 = 2.29208$

$$R_1 - \frac{(N_1 \cdot N_2 \cdot N_3)}{(N_1 \cdot N_2 \cdot N_3) - (N_3 - 1) \cdot -3} = 0.00000$$

$$R_2 - \frac{(N_1 \cdot N_2 \cdot N_3)}{(N_1 \cdot N_2 \cdot N_3) - (N_3 - 1) \cdot -2} = 0.00000$$

$$R_3 - \frac{(N_1 \cdot N_2 \cdot N_3)}{(N_1 \cdot N_2 \cdot N_3) - (N_3 - 1) \cdot -1} = 0.00000$$

$$R_4 - \frac{(N_1 \cdot N_2 \cdot N_3)}{(N_1 \cdot N_2 \cdot N_3) - (N_3 - 1) \cdot 1} = 0.00000$$

$$R_5 - \frac{(N_1 \cdot N_2 \cdot N_3)}{(N_1 \cdot N_2 \cdot N_3) - (N_3 - 1) \cdot 2} = 0.00000$$

$$R_6 - \frac{(N_1 \cdot N_2 \cdot N_3)}{(N_1 \cdot N_2 \cdot N_3) - (N_3 - 1) \cdot 3} = 0.00000$$

Fractional Series Book 1 5

$AB := 1$

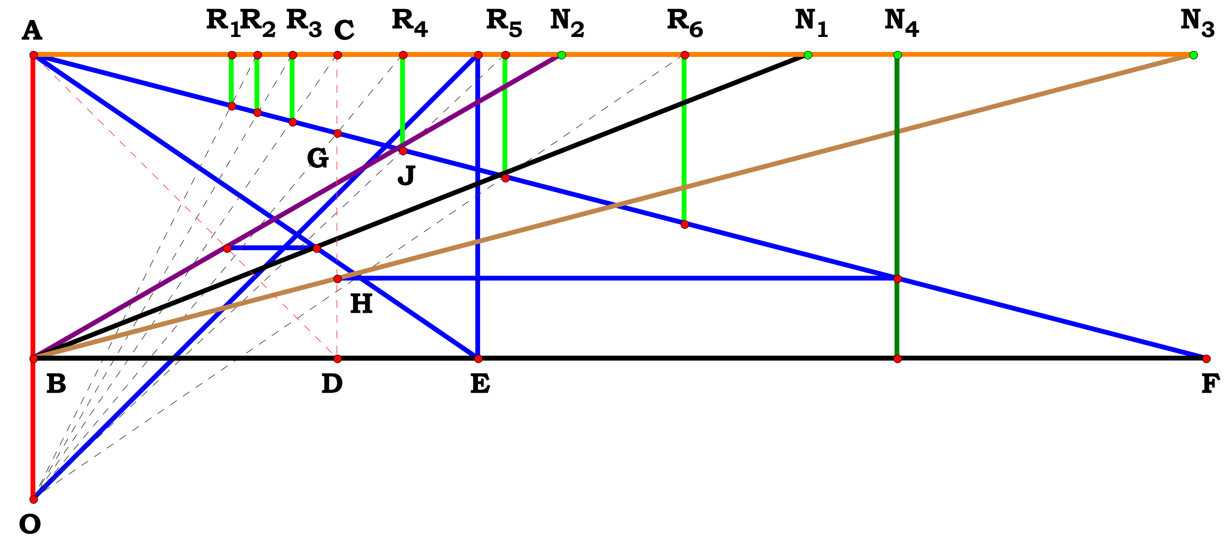
$N_1 := 2.54173$

$N_2 := 1.73712$

$N_3 := 3.81280$

$N_4 := 2.84066$

$N_1 = 2.54173$
$N_2 = 1.73712$
$N_3 = 3.81280$
$N_4 = 2.84066$
$R_1 = 0.65254$
$R_2 = 0.73802$
$R_3 = 0.84926$
$R_4 = 1.21579$
$R_5 = 1.55035$
$R_6 = 2.13892$



$$BE := \frac{N_1}{N_2} \quad DH := \frac{1}{N_3} \quad BF := \frac{N_4}{1 - DH} \quad CG := \frac{1}{BF}$$

$$R_4 := \frac{BE}{BE - CG} \quad R_5 := \frac{BE}{BE - CG \cdot 2} \quad R_6 := \frac{BE}{BE - CG \cdot 3}$$

$$R_3 := \frac{BE}{BE - CG \cdot -1} \quad R_2 := \frac{BE}{BE - CG \cdot -2} \quad R_1 := \frac{BE}{BE - CG \cdot -3} \quad CG - \frac{N_3 - 1}{N_3 \cdot N_4} = 0 \quad \frac{N_1 \cdot N_3 \cdot N_4}{Index \cdot (N_2 - N_2 \cdot N_3) + N_1 \cdot N_3 \cdot N_4}$$

$$R_4 - \frac{N_1 \cdot N_3 \cdot N_4}{N_2 - N_2 \cdot N_3 + N_1 \cdot N_3 \cdot N_4} = 0 \quad R_5 - \frac{N_1 \cdot N_3 \cdot N_4}{2 \cdot (N_2 - N_2 \cdot N_3) + N_1 \cdot N_3 \cdot N_4} = 0 \quad R_1 - \frac{N_1 \cdot N_3 \cdot N_4}{-3 \cdot (N_2 - N_2 \cdot N_3) + N_1 \cdot N_3 \cdot N_4} = 0 \quad R_2 - \frac{N_1 \cdot N_3 \cdot N_4}{-2 \cdot (N_2 - N_2 \cdot N_3) + N_1 \cdot N_3 \cdot N_4} = 0$$

$$R_3 - \frac{N_1 \cdot N_3 \cdot N_4}{-1 \cdot (N_2 - N_2 \cdot N_3) + N_1 \cdot N_3 \cdot N_4} = 0 \quad R_4 - \frac{N_1 \cdot N_3 \cdot N_4}{1 \cdot (N_2 - N_2 \cdot N_3) + N_1 \cdot N_3 \cdot N_4} = 0 \quad R_5 - \frac{N_1 \cdot N_3 \cdot N_4}{2 \cdot (N_2 - N_2 \cdot N_3) + N_1 \cdot N_3 \cdot N_4} = 0 \quad R_6 - \frac{N_1 \cdot N_3 \cdot N_4}{3 \cdot (N_2 - N_2 \cdot N_3) + N_1 \cdot N_3 \cdot N_4} = 0$$

$N_1 = 5.00000$
$N_2 = 3.00000$
$N_3 = 2.00000$
$N_4 = 6.00000$

A = 1.05263
B = 1.11111
C = 1.17647
D = 1.25000
E = 1.33333
F = 1.42857

G = 1.53846
H = 1.66667
I = 1.81818
J = 2.00000
K = 2.22222
L = 2.50000

M = 2.85714
N = 3.33333
O = 4.00000
P = 5.00000
Q = 6.66667
R = 10.00000

$R_1 = 0.65254$

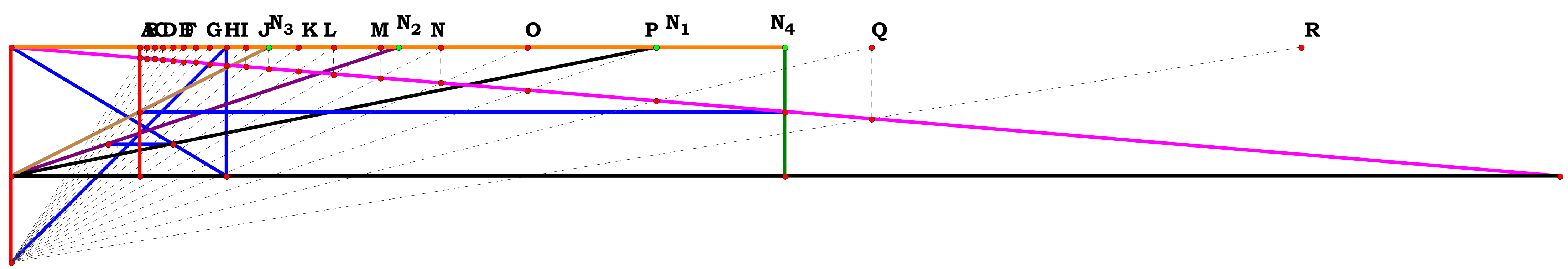
$R_2 = 0.738017$

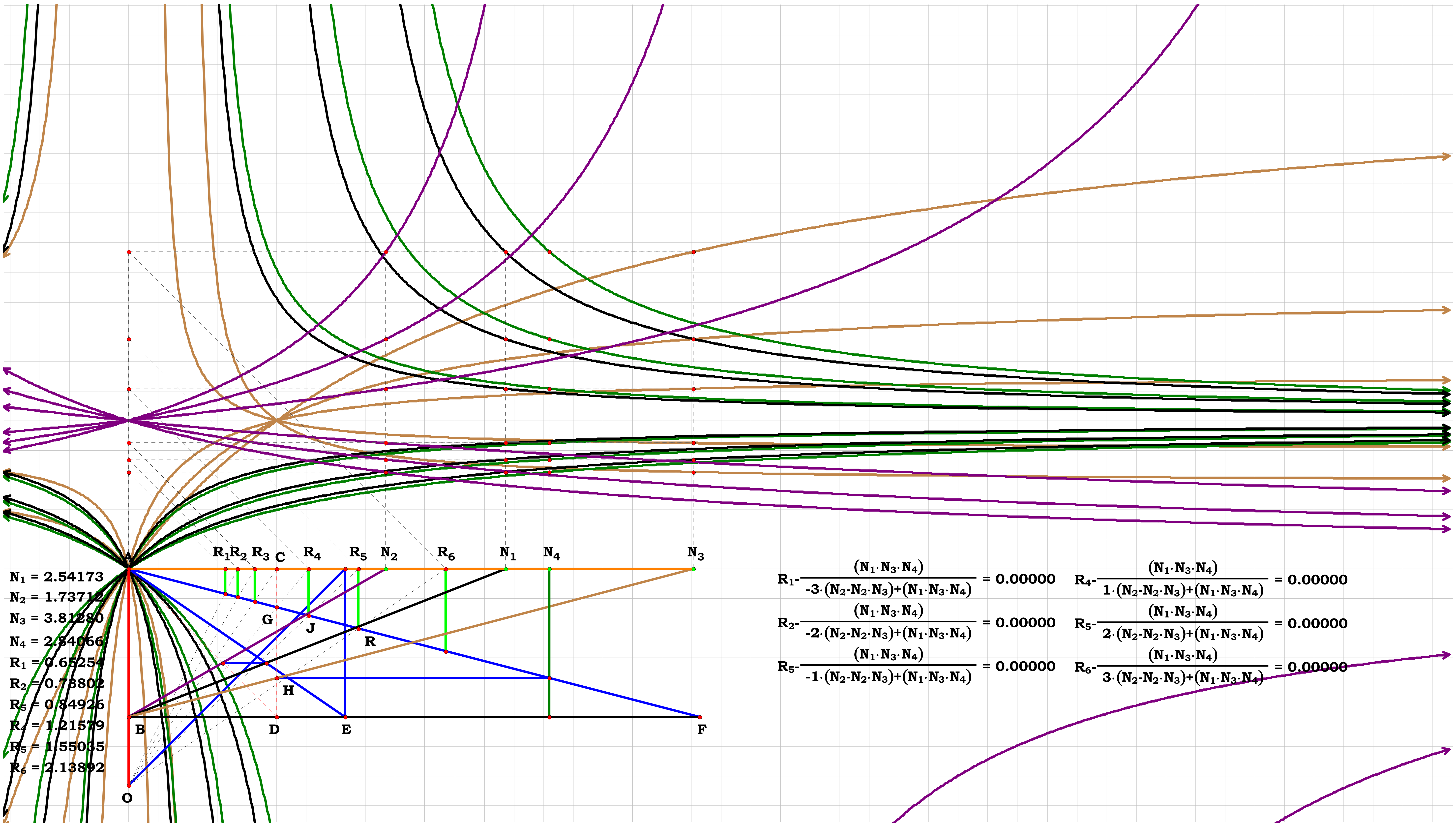
$R_3 = 0.849263$

$R_4 = 1.215792$

$R_5 = 1.550344$

$R_6 = 2.138912$





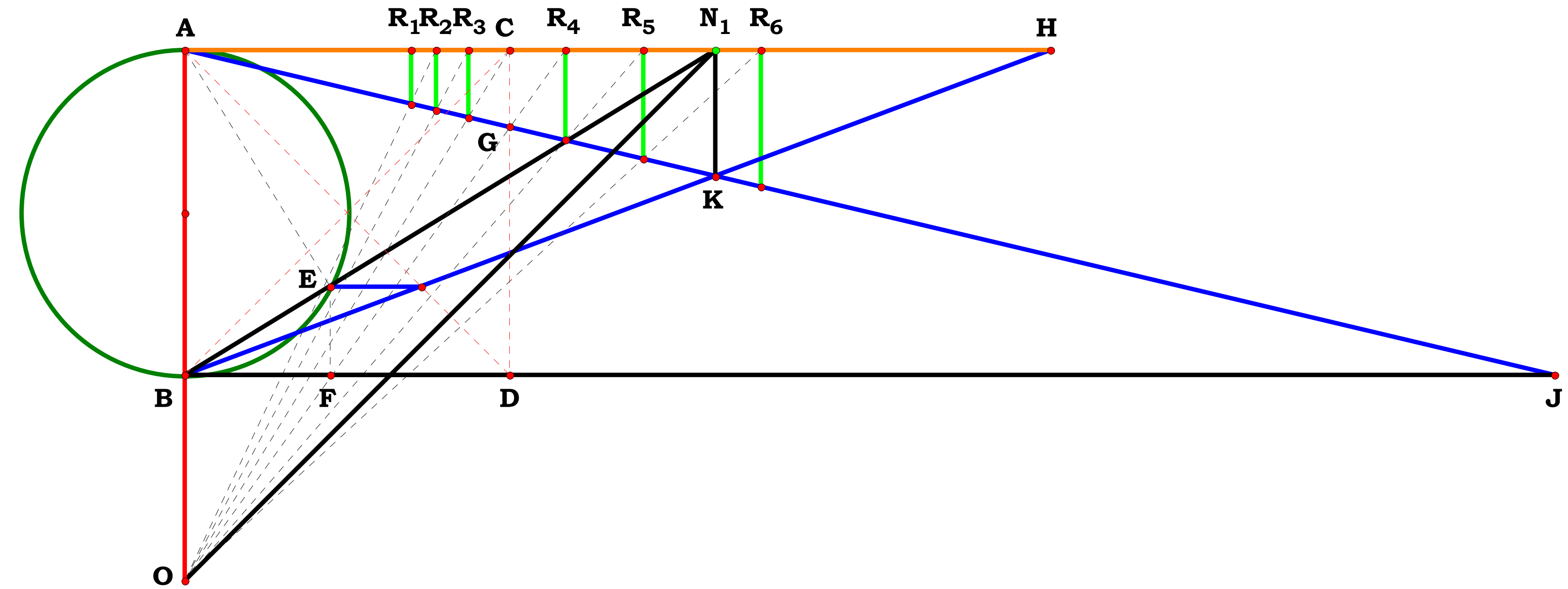
A
B
C
D
E
F
G
H
J
R
O
R1 R2 R3 C R4 R5 N2 R6 N1 N4 N3
N1 = 2.54173
N2 = 1.73712
N3 = 3.81280
N4 = 2.84066
R1 = 0.65254
R2 = 0.73802
R5 = 0.84926
R4 = 1.21579
R5 = 1.55035
R6 = 2.13892
R1 - (N1·N3·N4) / (-3·(N2-N2·N3)+(N1·N3·N4)) = 0.00000
R2 - (N1·N3·N4) / (-2·(N2-N2·N3)+(N1·N3·N4)) = 0.00000
R5 - (N1·N3·N4) / (-1·(N2-N2·N3)+(N1·N3·N4)) = 0.00000
R4 - (N1·N3·N4) / (1·(N2-N2·N3)+(N1·N3·N4)) = 0.00000
R5 - (N1·N3·N4) / (2·(N2-N2·N3)+(N1·N3·N4)) = 0.00000
R6 - (N1·N3·N4) / (3·(N2-N2·N3)+(N1·N3·N4)) = 0.00000

$AB := 1$

$N_1 := 1.63207$

Fractional Series Book 1 7

$N_1 = 1.63207$
$R_1 = 0.69629$
$R_2 = 0.77472$
$R_3 = 0.87306$
$R_4 = 1.17013$
$R_5 = 1.41002$
$R_6 = 1.77363$



$$BN_1 := \sqrt{AB^2 + N_1^2} \qquad BE := \frac{AB^2}{BN_1} \qquad EF := \frac{BE}{BN_1}$$

$$AH := \frac{1 - EF}{EF} \qquad KN_1 := 1 - \frac{N_1}{AH} \qquad BJ := \frac{N_1}{KN_1}$$

$$CG := \frac{1}{BJ} \qquad CG - \frac{N_1 - 1}{N_1^{\,2}} = 0 \qquad R_4 := \frac{N_1}{N_1 - CG} \qquad R_5 := \frac{N_1}{N_1 - 2 \cdot CG}$$

$$R_6 := \frac{N_1}{N_1 - 3 \cdot CG} \qquad R_3 := \frac{N_1}{N_1 + CG} \qquad R_2 := \frac{N_1}{N_1 + 2 \cdot CG} \qquad R_1 := \frac{N_1}{N_1 + 3 \cdot CG}$$

$$\frac{N_1^{\,3}}{N_1^{\,3} - \mathrm{Index} \cdot (N_1 - 1)}$$

$$R_1 - \frac{N_1^{\,3}}{N_1^{\,3} - (N_1 - 1) \cdot -3} = 0 \qquad R_2 - \frac{N_1^{\,3}}{N_1^{\,3} + 2 \cdot N_1 - 2} = 0$$

$$R_3 - \frac{N_1^{\,3}}{N_1^{\,3} + N_1 - 1} = 0 \qquad R_4 - \frac{N_1^{\,3}}{N_1^{\,3} - N_1 + 1} = 0$$

$$R_5 - \frac{N_1^{\,3}}{N_1^{\,3} - 2 \cdot N_1 + 2} = 0 \qquad R_6 - \frac{N_1^{\,3}}{N_1^{\,3} - 3 \cdot N_1 + 3} = 0$$

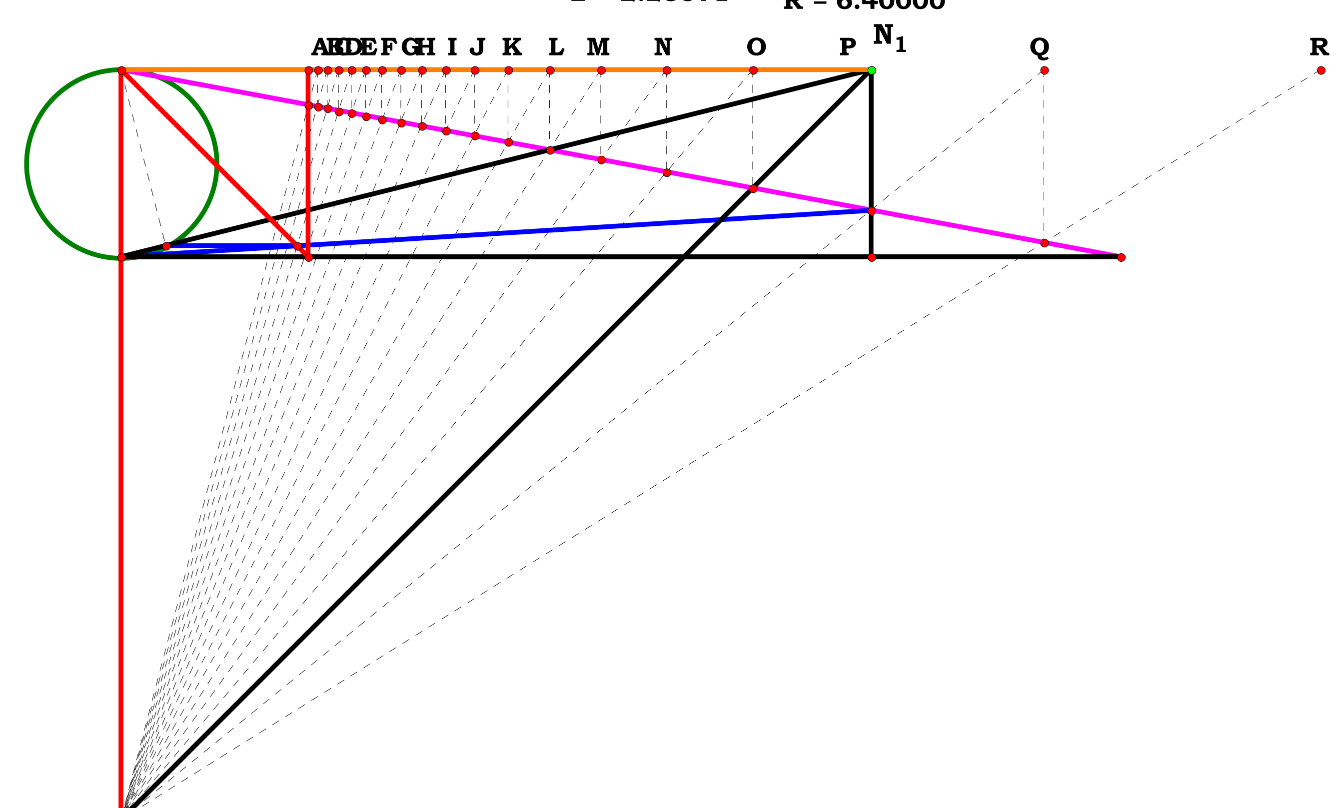
$R_1 = 0.696289$ $\qquad R_4 = 1.170131$

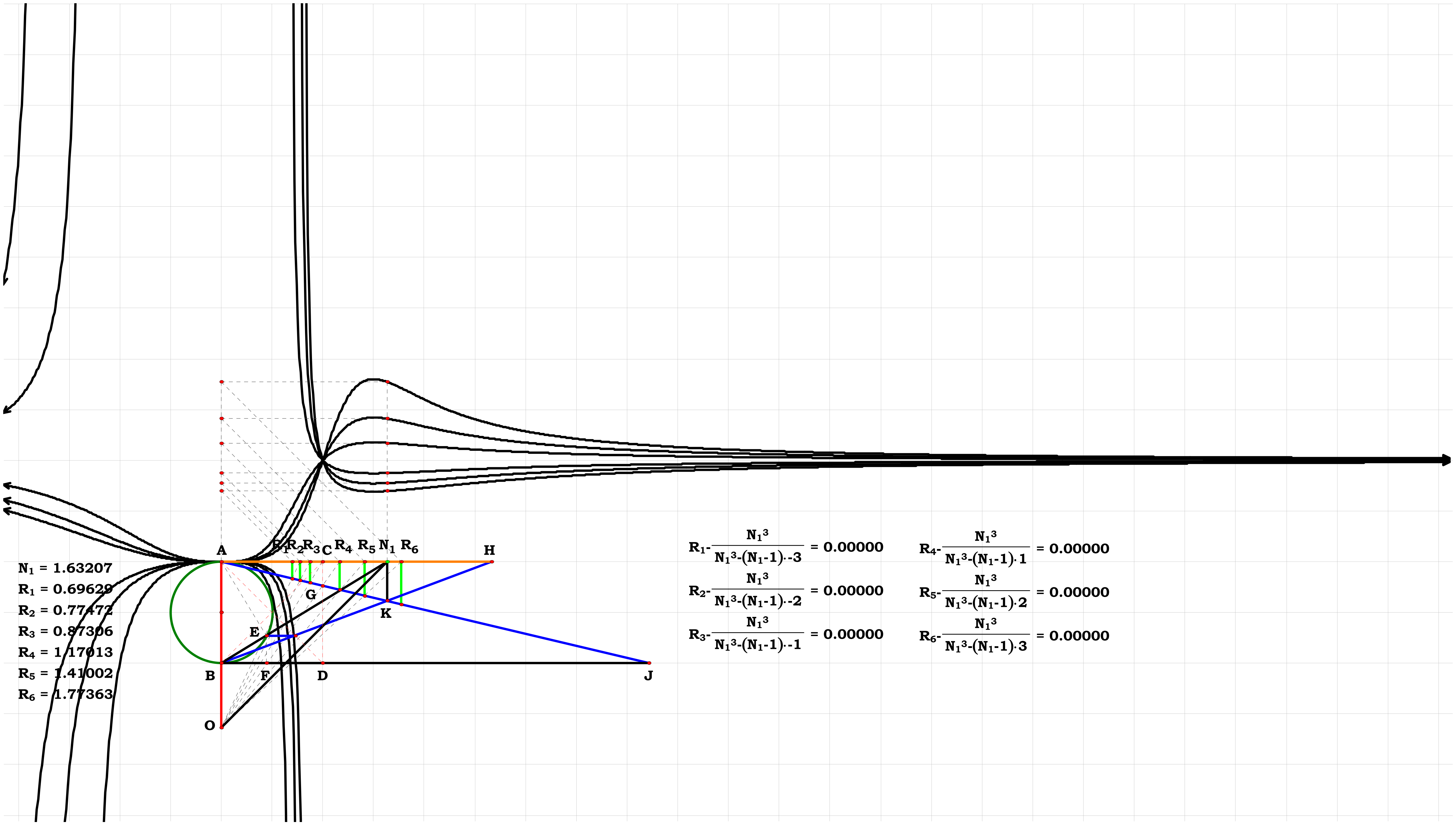
$R_2 = 0.77472$ $\qquad R_5 = 1.410019$

$R_3 = 0.873061$ $\qquad R_6 = 1.773629$

$N_1 = 4.00000$

A = 1.04918	G = 1.48837	M = 2.56000
B = 1.10345	H = 1.60000	N = 2.90909
C = 1.16364	I = 1.72973	O = 3.36842
D = 1.23077	J = 1.88235	P = 4.00000
E = 1.30612	K = 2.06452	Q = 4.92308
F = 1.39130	L = 2.28571	R = 6.40000





A
R1 R2 R3 C R4 R5 N1 R6
H
G
K
E
B
F
D
J
O
$N_1 = 1.63207$
$R_1 = 0.69629$
$R_2 = 0.77472$
$R_3 = 0.87306$
$R_4 = 1.17013$
$R_5 = 1.41002$
$R_6 = 1.77363$
$R_1 - \frac{N_1^3}{N_1^3 - (N_1 - 1) \cdot -3} = 0.00000$
$R_2 - \frac{N_1^3}{N_1^3 - (N_1 - 1) \cdot -2} = 0.00000$
$R_3 - \frac{N_1^3}{N_1^3 - (N_1 - 1) \cdot -1} = 0.00000$
$R_4 - \frac{N_1^3}{N_1^3 - (N_1 - 1) \cdot 1} = 0.00000$
$R_5 - \frac{N_1^3}{N_1^3 - (N_1 - 1) \cdot 2} = 0.00000$
$R_6 - \frac{N_1^3}{N_1^3 - (N_1 - 1) \cdot 3} = 0.00000$

$AB := 1$

$N_1 := 2.99687$

$N_2 := 2.21643$

Fractional Series Book 1 19

$$CE := \frac{1}{N_1}$$

$$R_4 := \frac{N_2}{N_2 - CE} \qquad R_5 := \frac{N_2}{N_2 - 2 \cdot CE} \qquad R_6 := \frac{N_2}{N_2 - 3 \cdot CE}$$

$$R_3 := \frac{N_2}{N_2 + CE} \qquad R_2 := \frac{N_2}{N_2 + 2 \cdot CE} \qquad R_1 := \frac{N_2}{N_2 + 3 \cdot CE}$$

$$\frac{N_1 \cdot N_2}{N_1 \cdot N_2 - \text{Index}}$$

$$R_4 - \frac{N_1 \cdot N_2}{N_1 \cdot N_2 - 1} = 0 \qquad R_5 - \frac{N_1 \cdot N_2}{N_1 \cdot N_2 - 2} = 0$$

$$R_6 - \frac{N_1 \cdot N_2}{N_1 \cdot N_2 - 3} = 0 \qquad R_3 - \frac{N_1 \cdot N_2}{N_1 \cdot N_2 - -1} = 0$$

$$R_2 - \frac{N_1 \cdot N_2}{N_1 \cdot N_2 - -2} = 0 \qquad R_1 - \frac{N_1 \cdot N_2}{N_1 \cdot N_2 - -3} = 0$$

$R_1 = 0.688873$

$R_2 = 0.768582$

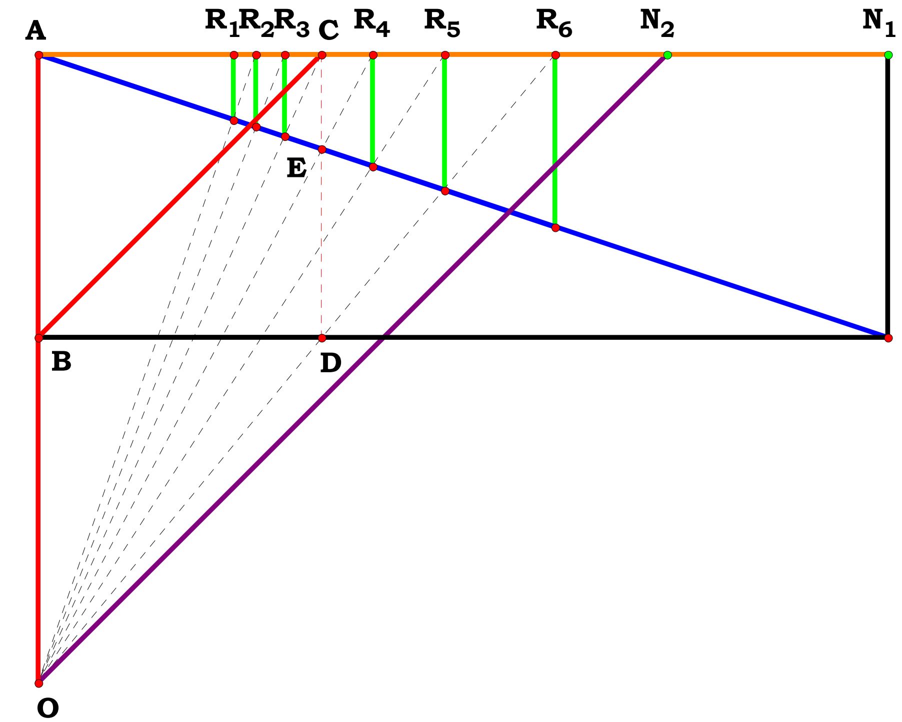
$R_3 = 0.86915$

$R_4 = 1.177231$

$R_5 = 1.430816$

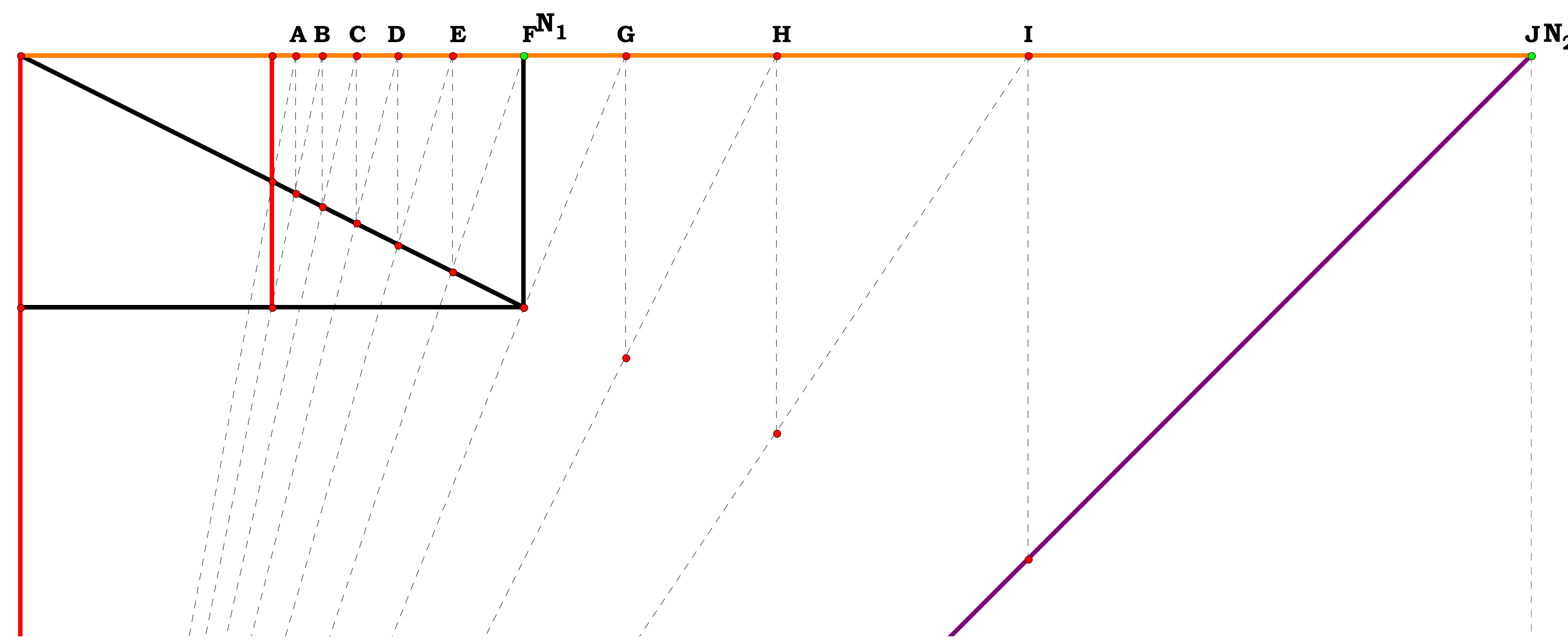
$R_6 = 1.823643$

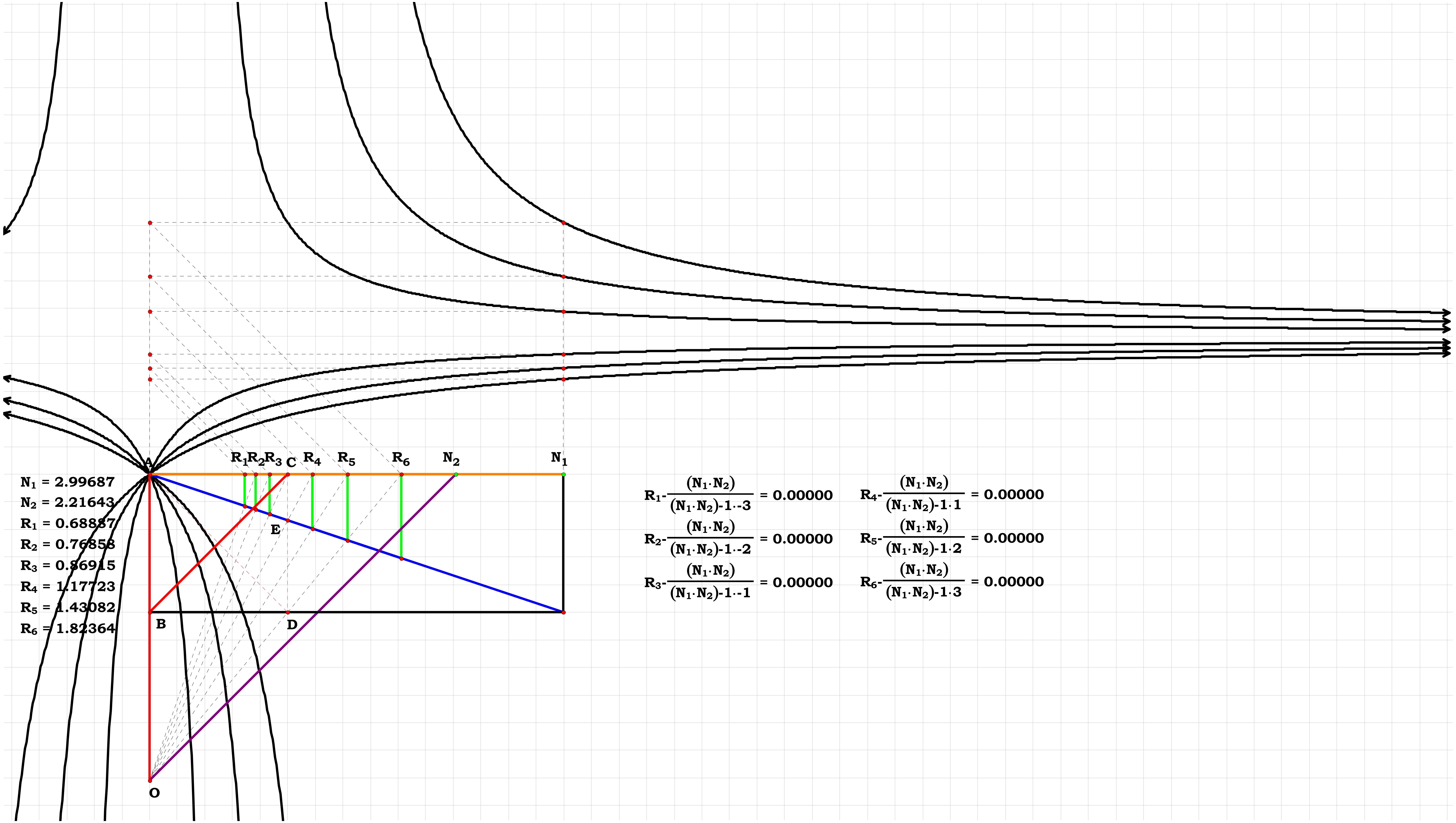
$N_1 = 2.99687$
$N_2 = 2.21643$
$R_1 = 0.68887$
$R_2 = 0.76858$
$R_3 = 0.86915$
$R_4 = 1.17723$
$R_5 = 1.43082$
$R_6 = 1.82364$



$N_1 = 2.00000$
$N_2 = 6.00000$

A = 1.09091	G = 2.40000	M = -12.00000
B = 1.20000	H = 3.00000	N = -6.00000
C = 1.33333	I = 4.00000	O = -4.00000
D = 1.50000	J = 6.00000	P = -3.00000
E = 1.71429	K = 12.00000	Q = -2.40000
F = 2.00000	L = $-8.34511 \cdot 10^{13}$	R = -2.00000





A
B
C
D
E
O
R1
R2
R3
R4
R5
R6
N2
N1
N1 = 2.99687
N2 = 2.21643
R1 = 0.68887
R2 = 0.76858
R3 = 0.86915
R4 = 1.17723
R5 = 1.43082
R6 = 1.82364
R1-(N1·N2)/((N1·N2)-1·-3) = 0.00000
R2-(N1·N2)/((N1·N2)-1·-2) = 0.00000
R3-(N1·N2)/((N1·N2)-1·-1) = 0.00000
R4-(N1·N2)/((N1·N2)-1·1) = 0.00000
R5-(N1·N2)/((N1·N2)-1·2) = 0.00000
R6-(N1·N2)/((N1·N2)-1·3) = 0.00000

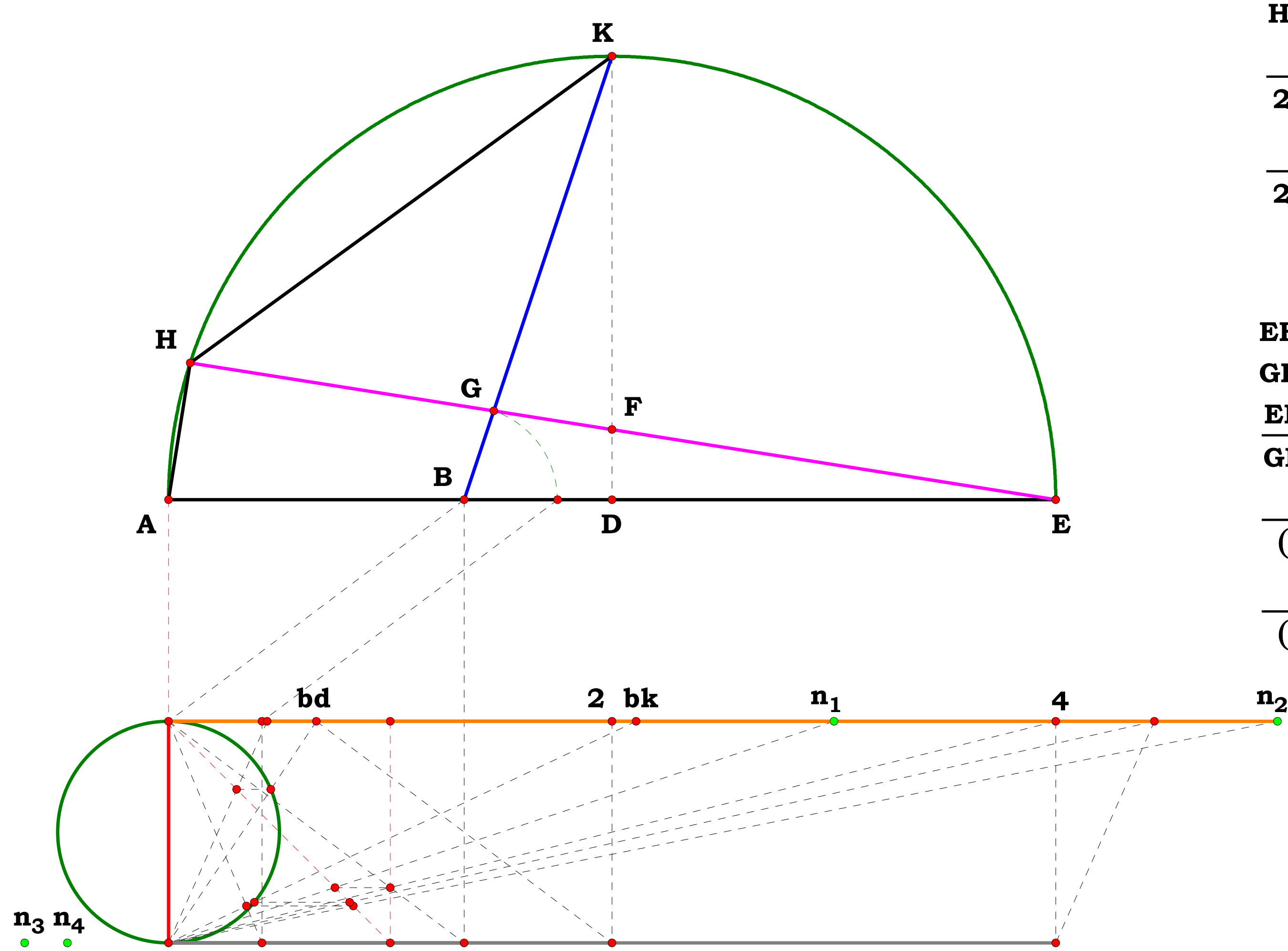
Circle
Show Lines
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

$N_1 = 3.00000$
$N_2 = 5.00000$

Points

Circle
Show Lines
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
Points
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

bd = 0.66667
bd^2 = 0.44444



$AH = 0.62385$

$HK = 2.35269$

$$\frac{AH}{HK} = 0.26517$$

$$\frac{\sqrt{2}\cdot N_1}{2\cdot(N_1-1)\cdot(N_2-1)} = 0.26517$$

$$\frac{\sqrt{2}\cdot N_1}{2\cdot(N_1-1)\cdot(N_2-1)} - \frac{AH}{HK} = 0.00000$$

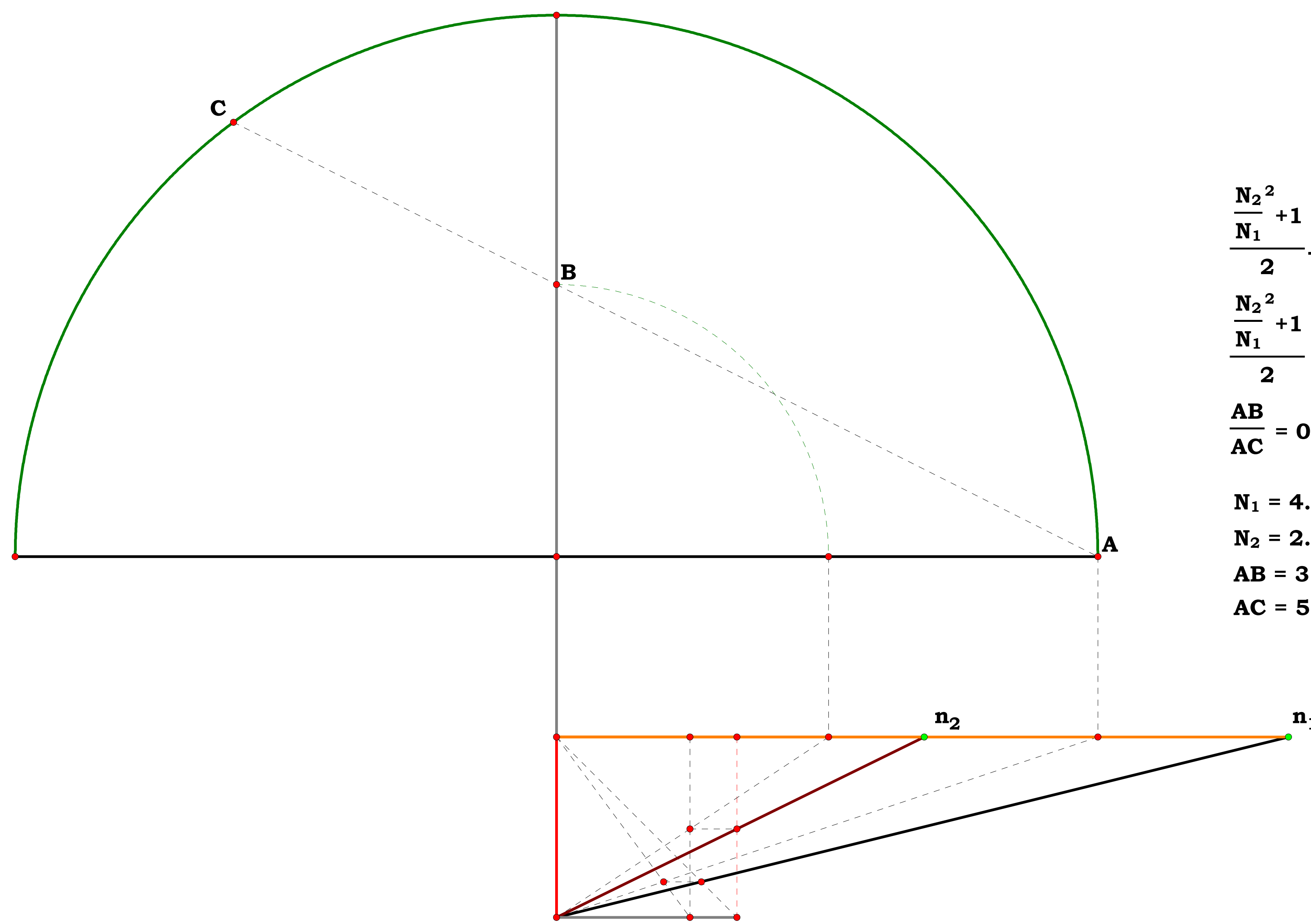
$EH = 3.95105$

$GH = 1.38633$

$$\frac{EH}{GH} = 2.85000$$

$$\frac{N_1\cdot N_2\cdot((2\cdot N_1\cdot N_2-2\cdot N_2-N_1)+2)}{(N_2-1)\cdot((((2\cdot N_1\cdot N_2-2\cdot N_2)+N_1^2)-2\cdot N_1)+2)} = 2.85000$$

$$\frac{N_1\cdot N_2\cdot((2\cdot N_1\cdot N_2-2\cdot N_2-N_1)+2)}{(N_2-1)\cdot((((2\cdot N_1\cdot N_2-2\cdot N_2)+N_1^2)-2\cdot N_1)+2)} - \frac{EH}{GH} = 0.00000$$



$$\frac{\frac{N_2{}^2}{N_1}+1}{2}-\frac{AB}{AC} = 0.00000$$

$$\frac{\frac{N_2{}^2}{N_1}+1}{2} = 0.62621$$

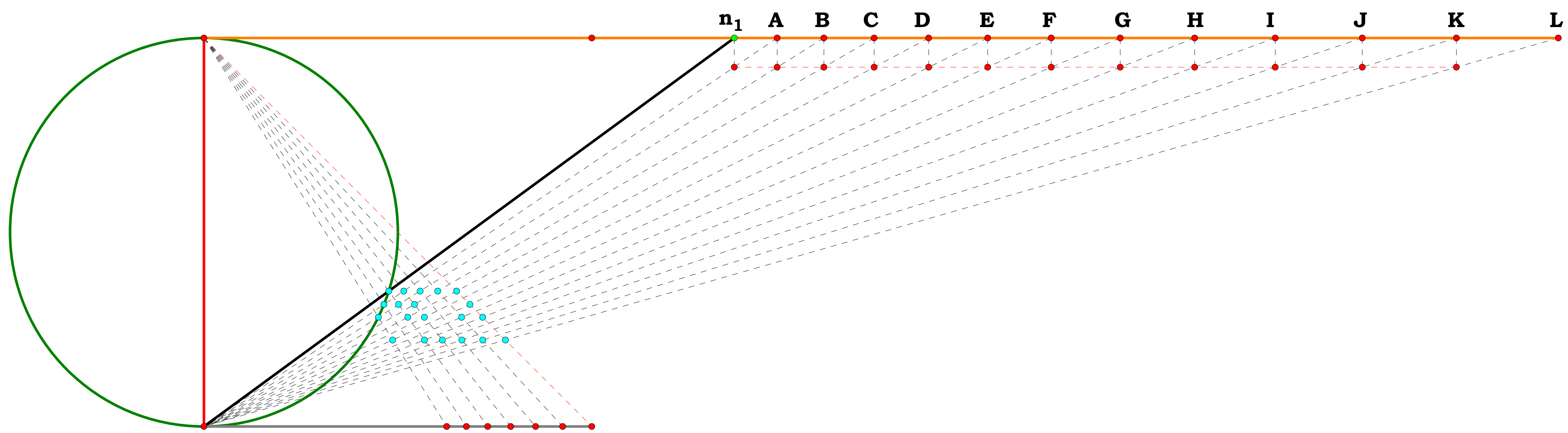
$$\frac{AB}{AC} = 0.62621$$

$N_1 = 4.05604$

$N_2 = 2.03783$

$AB = 3.35735$

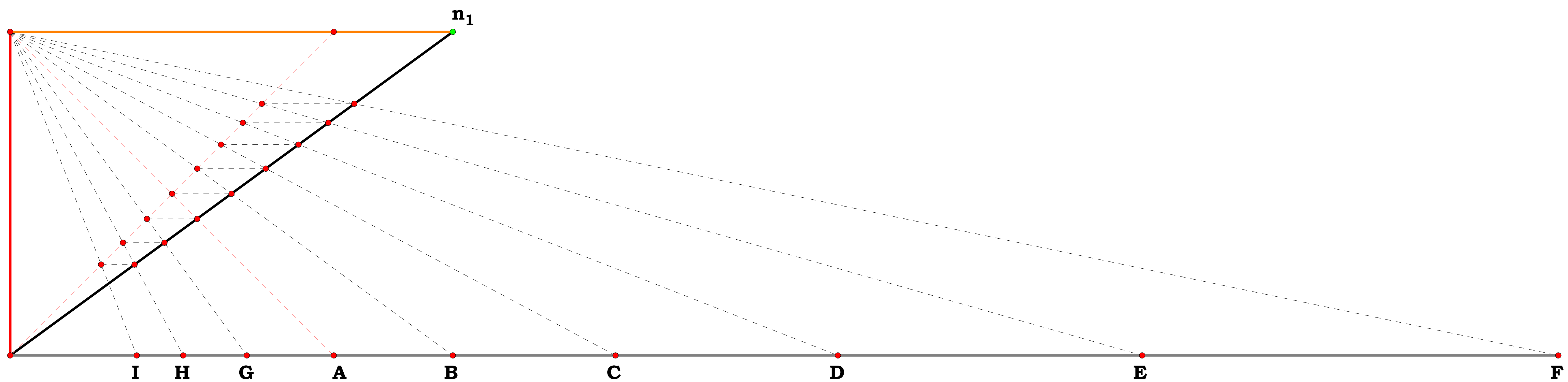
$AC = 5.36137$



$N_1 = 1.36693$

A = 1.47803	E = 2.02036	I = 2.76169
B = 1.59816	F = 2.18457	J = 2.98615
C = 1.72805	G = 2.36212	K = 3.22885
D = 1.86850	H = 2.55410	L = 3.49128

$N_1^{1.25}$-A = 0.00000	$N_1^{2.25}$-E = 0.00000	$N_1^{3.25}$-I = 0.00000
$N_1^{1.5}$-B = 0.00000	$N_1^{2.5}$-F = 0.00000	$N_1^{3.5}$-J = 0.00000
$N_1^{1.75}$-C = 0.00000	$N_1^{2.75}$-G = 0.00000	$N_1^{3.75}$-K = 0.00000
N_1^{2}-D = 0.00000	N_1^{3}-H = 0.00000	N_1^{4}-L = 0.00000



$N_1 = 1.36763$

$A = 1.00000$
$B = 1.36763$
$C = 1.87042$
$D = 2.55805$

$E = 3.49847$
$F = 4.78462$
$G = 0.73119$
$H = 0.53464$
$I = 0.39092$

$N_1^0 - A = 0.00000$
$N_1^1 - B = 0.00000$
$N_1^2 - C = 0.00000$
$N_1^3 - D = 0.00000$

$N_1^4 - E = 0.00000$
$N_1^5 - F = 0.00000$
$N_1^{-1} - G = 0.00000$
$N_1^{-2} - H = 0.00000$
$N_1^{-3} - I = 0.00000$

$N_1 = 2.10483$

$N_2 = 2.59960$

$x_A = 2.10483$

$x_B = 2.59960$

$x_C = 3.21068$

$x_D = 3.96539$

$x_E = 4.89752$

$x_F = 1.70423$

$x_G = 1.37987$

$x_H = 1.11724$

$x_I = 0.90460$

$\frac{N_2^0}{N_1^{-1}} = 2.10483$

$\frac{N_2^1}{N_1^0} = 2.59960$

$\frac{N_2^2}{N_1^1} = 3.21068$

$\frac{N_2^3}{N_1^2} = 3.96539$

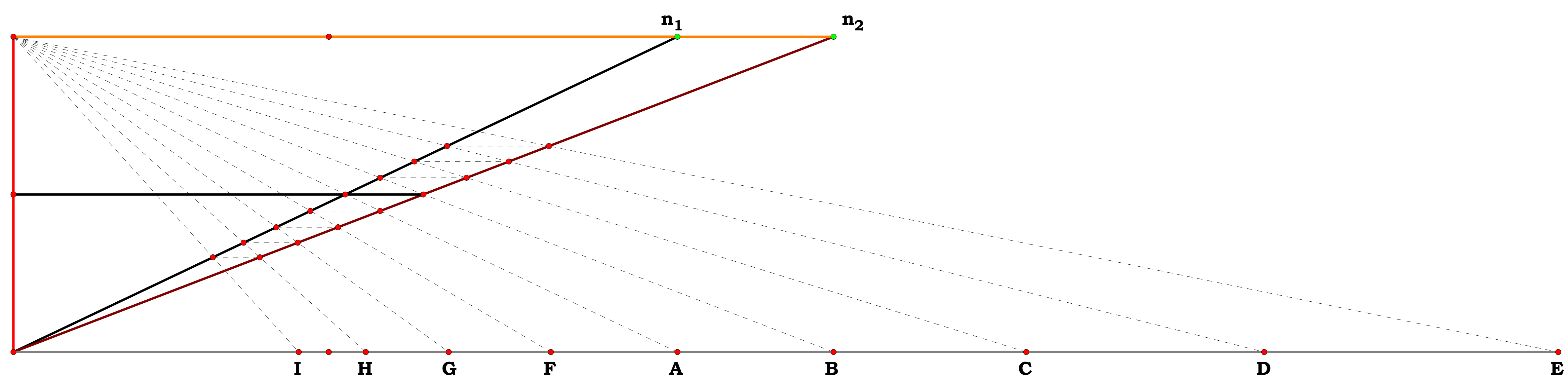
$\frac{N_2^4}{N_1^3} = 4.89752$

$\frac{N_2^{-1}}{N_1^{-2}} = 1.70423$

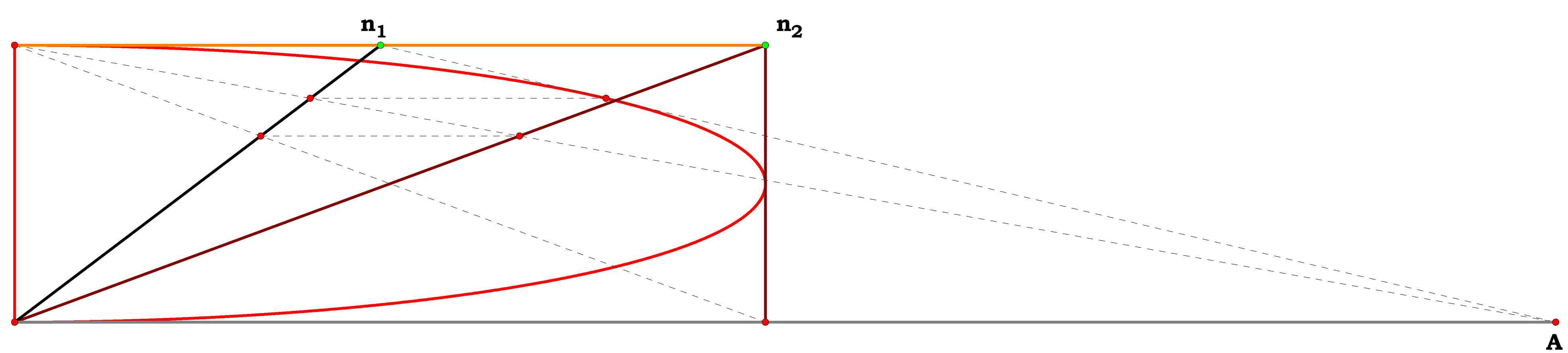
$\frac{N_2^{-2}}{N_1^{-3}} = 1.37987$

$\frac{N_2^{-3}}{N_1^{-4}} = 1.11724$

$\frac{N_2^{-4}}{N_1^{-5}} = 0.90460$



From any point n_1 draw the tangent to the ellipse n_2. Or given the square n_2 divide it by n_1.



$N_1 = 1.32088$ $A = 5.56312$

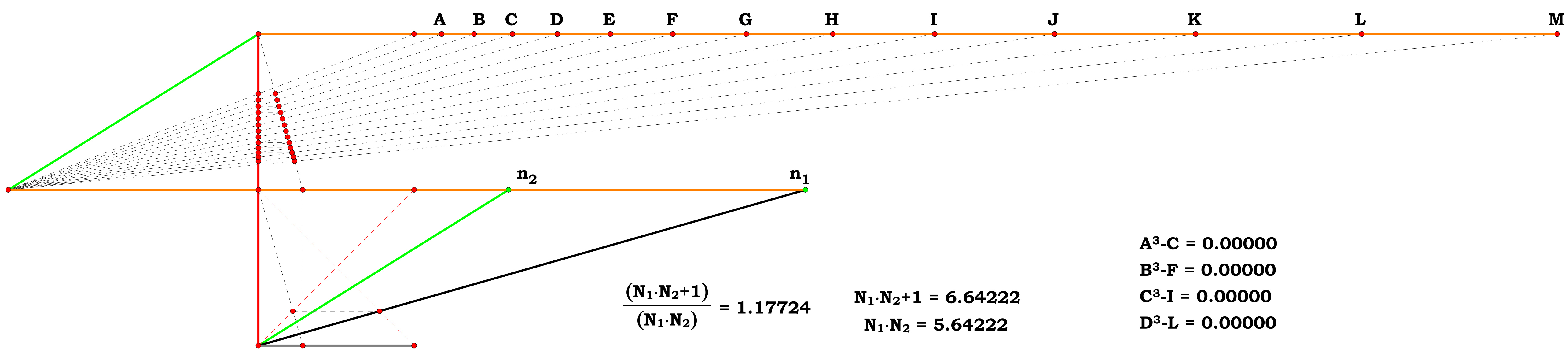
$N_2 = 2.71076$ $\frac{N_2^2}{N_1} - A = 0.00000$

$A^2 - B = 0.00000$
$(A \cdot B) - C = 0.00000$
$B^2 - D = 0.00000$
$(B \cdot C) - E = 0.00000$

$C^2 - F = 0.00000$
$(C \cdot D) - G = 0.00000$
$D^2 - H = 0.00000$
$(D \cdot E) - I = 0.00000$

$E^2 - J = 0.00000$
$(E \cdot F) - K = 0.00000$
$F^2 - L = 0.00000$
$(F \cdot G) - M = 0.00000$

$$\frac{N_1 \cdot N_2 + 1}{N_1 \cdot N_2}^{1} - A = 0.00000$$
$$\frac{(N_1 \cdot N_2 + 1)^{2}}{(N_1 \cdot N_2)} - B = 0.00000$$
$$\frac{(N_1 \cdot N_2 + 1)^{3}}{(N_1 \cdot N_2)} - C = 0.00000$$
$$\frac{(N_1 \cdot N_2 + 1)^{4}}{(N_1 \cdot N_2)} - D = 0.00000$$
$$\frac{(N_1 \cdot N_2 + 1)^{5}}{(N_1 \cdot N_2)} - E = 0.00000$$
$$\frac{(N_1 \cdot N_2 + 1)^{6}}{(N_1 \cdot N_2)} - F = 0.00000$$
$$\frac{(N_1 \cdot N_2 + 1)^{7}}{(N_1 \cdot N_2)} - G = 0.00000$$
$$\frac{(N_1 \cdot N_2 + 1)^{8}}{(N_1 \cdot N_2)} - H = 0.00000$$
$$\frac{(N_1 \cdot N_2 + 1)^{9}}{(N_1 \cdot N_2)} - I = 0.00000$$
$$\frac{(N_1 \cdot N_2 + 1)^{10}}{(N_1 \cdot N_2)} - J = 0.00000$$
$$\frac{(N_1 \cdot N_2 + 1)^{11}}{(N_1 \cdot N_2)} - K = 0.00000$$
$$\frac{(N_1 \cdot N_2 + 1)^{12}}{(N_1 \cdot N_2)} - L = 0.00000$$
$$\frac{(N_1 \cdot N_2 + 1)^{13}}{(N_1 \cdot N_2)} - M = 0.00000$$



$$\frac{(N_1 \cdot N_2 + 1)}{(N_1 \cdot N_2)} = 1.17724$$

$N_1 \cdot N_2 + 1 = 6.64222$
$N_1 \cdot N_2 = 5.64222$

$A^3 - C = 0.00000$
$B^3 - F = 0.00000$
$C^3 - I = 0.00000$
$D^3 - L = 0.00000$

$N_1 = 3.51340$
$N_2 = 1.60591$

$A = 1.17724$
$B = 1.38588$
$C = 1.63151$
$D = 1.92067$
$E = 2.26108$

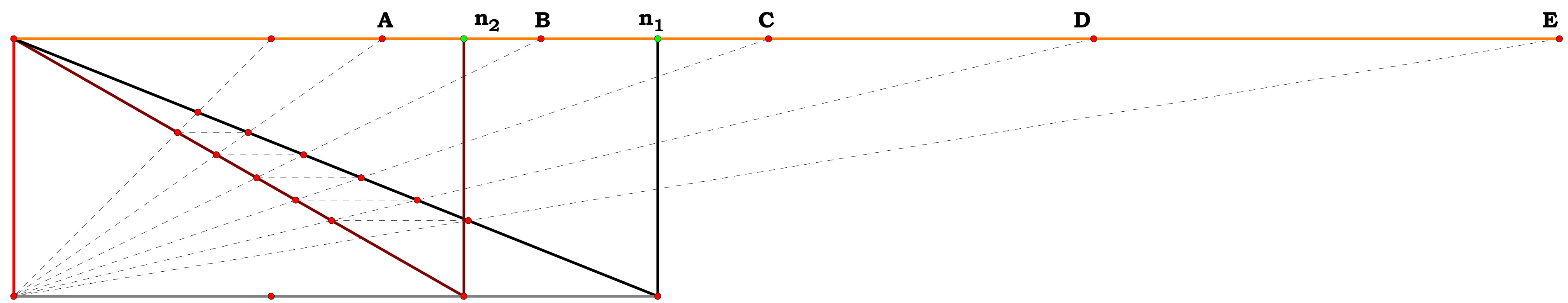
$F = 2.66183$
$G = 3.13360$
$H = 3.68898$
$I = 4.34280$

$J = 5.11249$
$K = 6.01861$
$L = 7.08532$
$M = 8.34108$

$A^2 = 1.38588$
$A \cdot B = 1.63151$
$B^2 = 1.92067$
$B \cdot C = 2.26108$

$C^2 = 2.66183$
$C \cdot D = 3.13360$
$D^2 = 3.68898$
$D \cdot E = 4.34280$

$E^2 = 5.11249$
$E \cdot F = 6.01861$
$F^2 = 7.08532$
$F \cdot G = 8.34108$



$$\frac{N_1}{N_2} - A = 0.00000$$

A = 1.43109

B = 2.04801

C = 2.93088

D = 4.19435

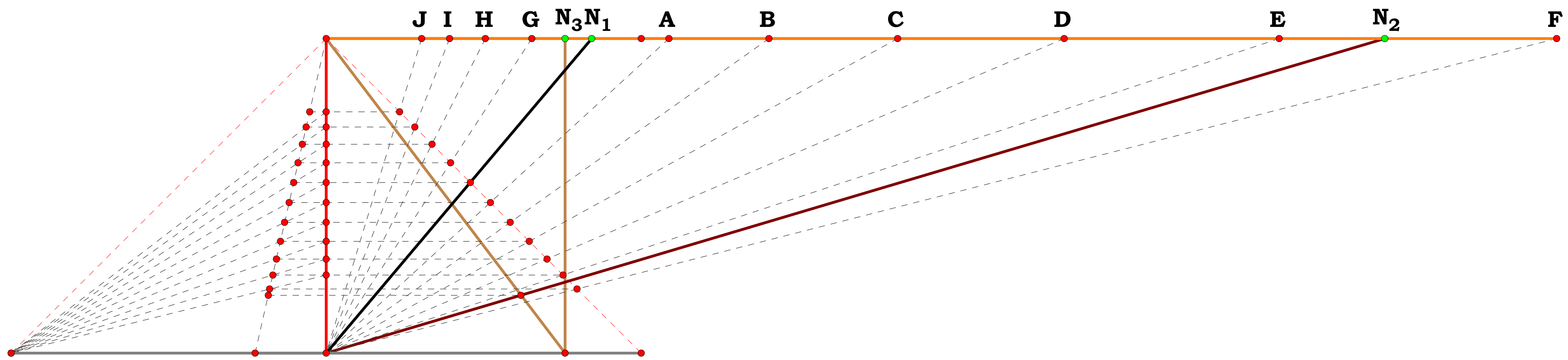
E = 6.00248

$$\frac{N_1^{\,2}}{N_2} - B = 0.00000$$

$$\frac{N_1^{\,3}}{N_2} - C = 0.00000$$

$$\frac{N_1^{\,4}}{N_2} - D = 0.00000$$

$$\frac{N_1^{\,5}}{N_2} - E = 0.00000$$



$$\frac{N_1^{\frac{1}{4}} \cdot N_2}{N_2-N_3}^{4} - D = 0.00000$$

$$\frac{N_1 \cdot N_2^{4}}{(N_2-N_3)^{4}} - D = 0.00000$$

$$\frac{N_2}{N_2-N_3} = 1.29123$$

$N_1 = 0.84255$

$N_2 = 3.35986$

$N_3 = 0.75780$

A = 1.08792

B = 1.40476

C = 1.81388

D = 2.34214

E = 3.02425

F = 3.90501

G = 0.65251

H = 0.50534

I = 0.39136

J = 0.30309

$$\frac{N_2}{N_2-N_3}^{1} \cdot N_1 - A = 0.00000$$

$$\frac{N_2}{N_2-N_3}^{2} \cdot N_1 - B = 0.00000$$

$$\frac{N_2}{N_2-N_3}^{3} \cdot N_1 - C = 0.00000$$

$$\frac{N_2}{N_2-N_3}^{4} \cdot N_1 - D = 0.00000$$

$$\frac{N_2}{N_2-N_3}^{5} \cdot N_1 - E = 0.00000$$

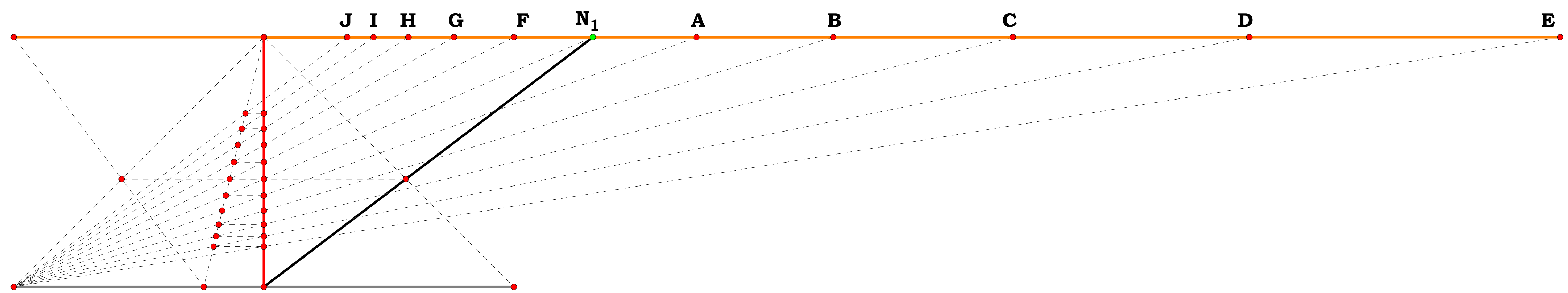
$$\frac{N_2}{N_2-N_3}^{6} \cdot N_1 - F = 0.00000$$

$$\frac{N_2}{N_2-N_3}^{-1} \cdot N_1 - G = 0.00000$$

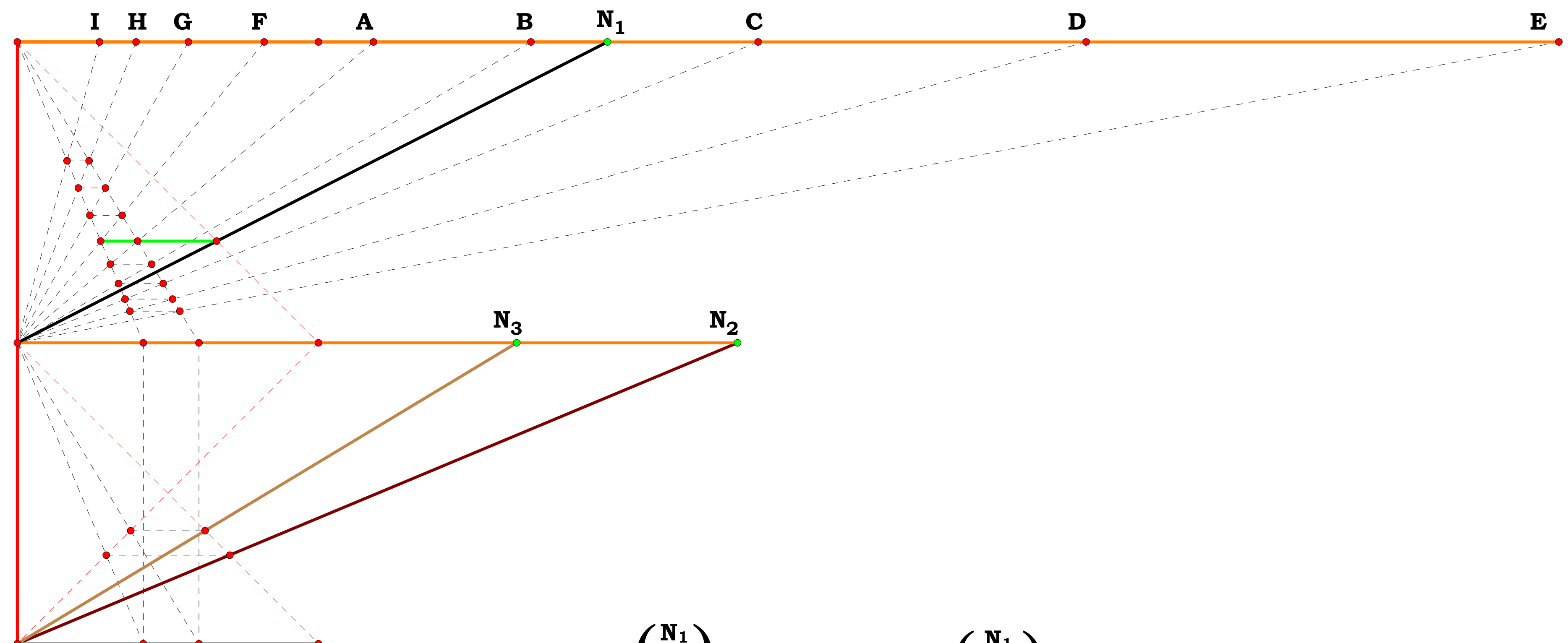
$$\frac{N_2}{N_2-N_3}^{-2} \cdot N_1 - H = 0.00000$$

$$\frac{N_2}{N_2-N_3}^{-3} \cdot N_1 - I = 0.00000$$

$$\frac{N_2}{N_2-N_3}^{-4} \cdot N_1 - J = 0.00000$$



$N_1 = 1.31554$	A = 1.73065	F = 1.00000	N_1^2-A = 0.00000	N_1^0-F = 0.00000
	B = 2.27675	G = 0.76014	N_1^3-B = 0.00000	N_1^{-1}-G = 0.00000
	C = 2.99516	H = 0.57782	N_1^4-C = 0.00000	N_1^{-2}-H = 0.00000
	D = 3.94026	I = 0.43922	N_1^5-D = 0.00000	N_1^{-3}-I = 0.00000
	E = 5.18358	J = 0.33387	N_1^6-E = 0.00000	N_1^{-4}-J = 0.00000



$N_1 = 1.95987$

$N_2 = 2.39124$

$N_3 = 1.65771$

A = 1.18227

B = 1.70541

C = 2.46005

D = 3.54859

E = 5.11881

F = 0.81960

G = 0.56819

H = 0.39389

I = 0.27306

$$\left(\frac{N_1}{N_3}\right)\cdot N_2^{0} - A = 0.00000$$

$$\left(\frac{N_1}{N_3^{2}}\right)\cdot N_2 - B = 0.00000$$

$$\left(\frac{N_1}{N_3^{3}}\right)\cdot N_2^{2} - C = 0.00000$$

$$\left(\frac{N_1}{N_3^{4}}\right)\cdot N_2^{3} - D = 0.00000$$

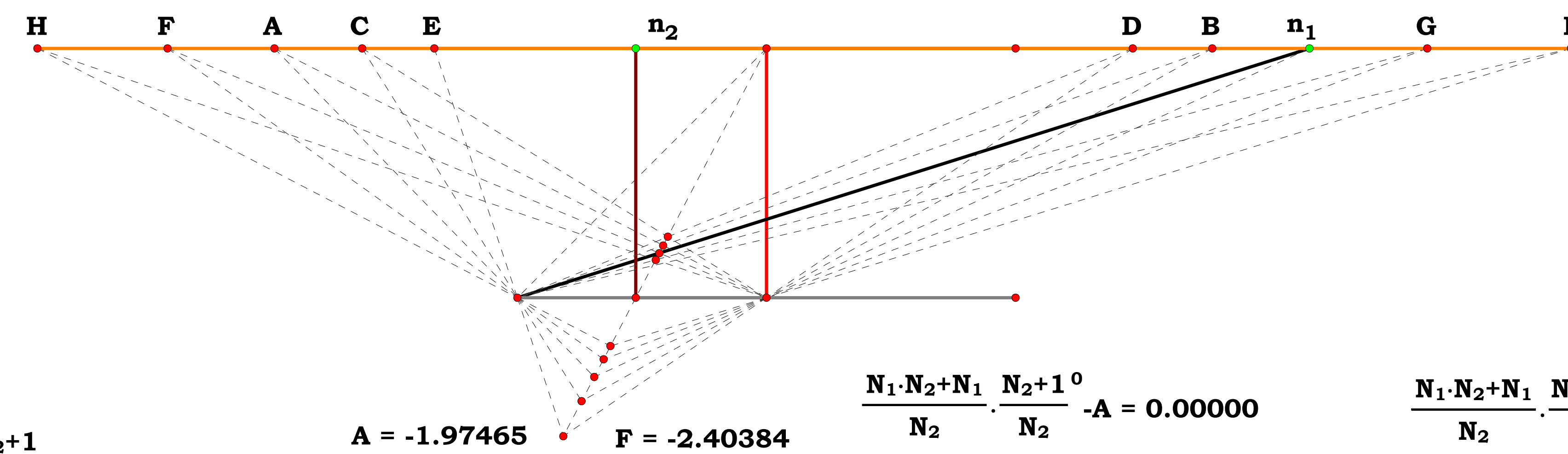
$$\left(\frac{N_1}{N_3^{5}}\right)\cdot N_2^{4} - E = 0.00000$$

$$\left(\frac{N_1}{N_3^{0}}\right)\cdot N_2^{-1} - F = 0.00000$$

$$\left(\frac{N_1}{N_3^{-1}}\right)\cdot N_2^{-2} - G = 0.00000$$

$$\left(\frac{N_1}{N_3^{-2}}\right)\cdot N_2^{-3} - H = 0.00000$$

$$\left(\frac{N_1}{N_3^{-3}}\right)\cdot N_2^{-4} - I = 0.00000$$



$$\frac{N_2+1}{N_2} = -0.90634$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} = -1.97465$$

$N_1 = 2.17870$

$N_2 = -0.52456$

$A = -1.97465$

$B = 1.78970$

$C = -1.62208$

$D = 1.47016$

$E = -1.33247$

$F = -2.40384$

$G = 2.65225$

$H = -2.92632$

$I = 3.22872$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{0} - A = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{1} - B = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{2} - C = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{3} - D = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{4} - E = 0.00000$$

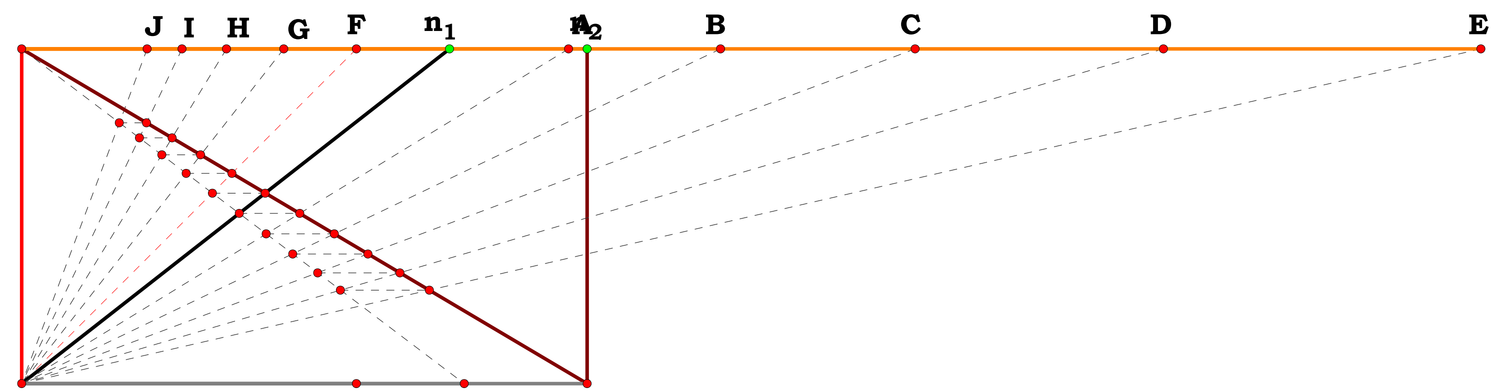
$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{-1} - N_1 = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{-2} - F = 0.00000$$

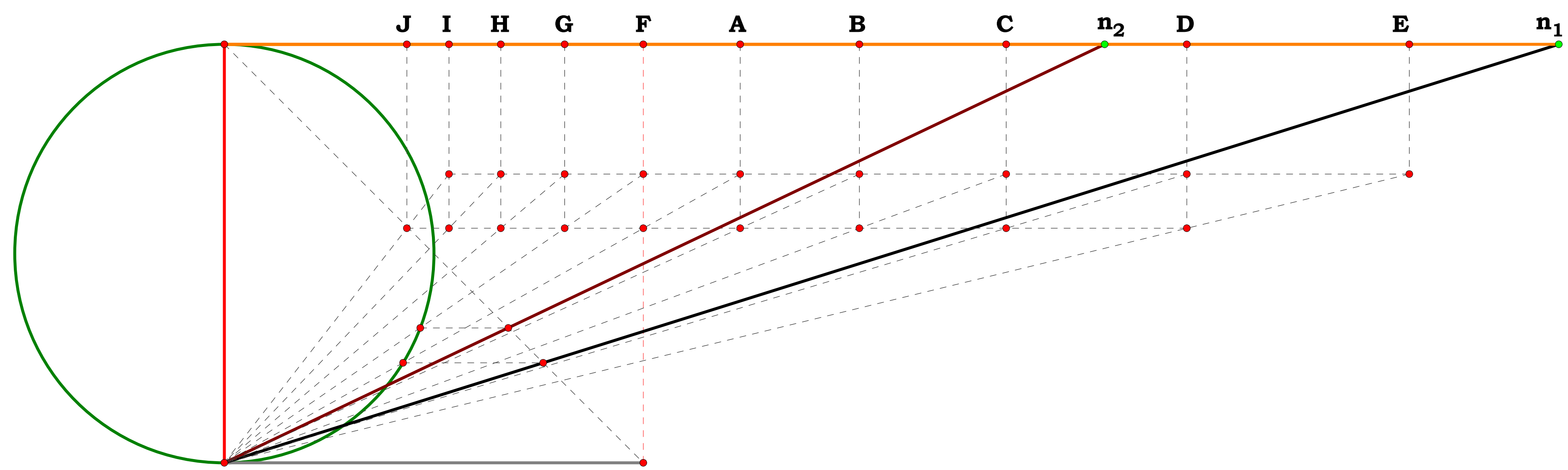
$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{-3} - G = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{-4} - H = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{-5} - I = 0.00000$$



	A = 1.63353	F = 1.00000	N_1^2-A = 0.00000	N_1^0-F = 0.00000
N_1 = 1.27809	B = 2.08780	G = 0.78241	N_1^3-B = 0.00000	N_1^{-1}-G = 0.00000
N_2 = 1.68896	C = 2.66841	H = 0.61217	N_1^4-C = 0.00000	N_1^{-2}-H = 0.00000
	D = 3.41048	I = 0.47897	N_1^5-D = 0.00000	N_1^{-3}-I = 0.00000
	E = 4.35891	J = 0.37476	N_1^6-E = 0.00000	N_1^{-4}-J = 0.00000



$$\frac{\sqrt{N_1}}{\sqrt{N_2}} = 1.23112$$

$N_1 = 3.18458$

$N_2 = 2.10112$

A = 1.23112
B = 1.51566
C = 1.86597
D = 2.29723
E = 2.82817

F = 1.00000
G = 0.81227
H = 0.65978
I = 0.53592
J = 0.43531

$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{1} - A = 0.00000$$

$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{2} - B = 0.00000$$

$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{3} - C = 0.00000$$

$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{4} - D = 0.00000$$

$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{5} - E = 0.00000$$

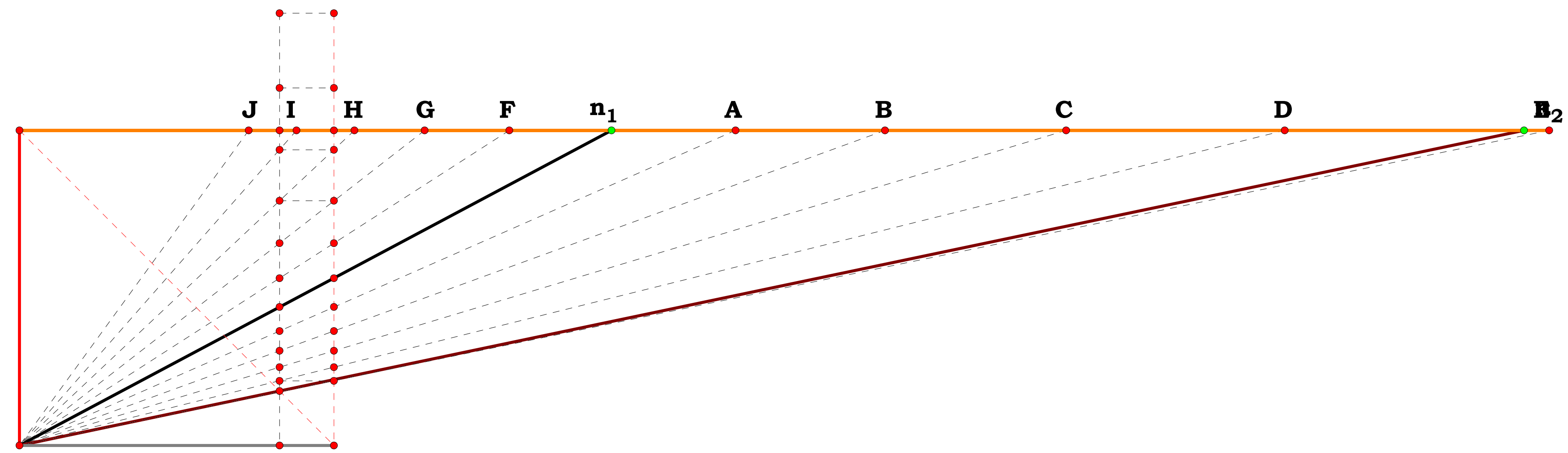
$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{0} - F = 0.00000$$

$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{-1} - G = 0.00000$$

$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{-2} - H = 0.00000$$

$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{-3} - I = 0.00000$$

$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{-4} - J = 0.00000$$



$$\frac{N_1 \cdot N_2+N_1}{N_2} = 2.27629$$

$$\frac{N_2+1}{N_2} = 1.20903$$

$N_1 = 1.88273$

$N_2 = 4.78390$

A = 2.27629

B = 2.75211

C = 3.32740

D = 4.02294

E = 4.86387

F = 1.55722

G = 1.28799

H = 1.06530

I = 0.88112

J = 0.72878

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{0} - A = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{1} - B = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{2} - C = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{3} - D = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{4} - E = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{-1} - N_1 = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{-2} - F = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{-3} - G = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{-4} - H = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{-5} - I = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{-6} - J = 0.00000$$

$$\frac{N_2\cdot(N_1+1)}{N_1\cdot(N_2+1)} = 1.10710$$

A = 1.10710
B = 1.22567
C = 1.35694
D = 1.50227
E = 1.66316
F = 0.90326
G = 0.81588
H = 0.73695
I = 0.66566

$$\left(\frac{N_2\cdot(N_1+1)}{N_1\cdot(N_2+1)}\right)^{1} - A = 0.00000$$

$$\left(\frac{N_2\cdot(N_1+1)}{N_1\cdot(N_2+1)}\right)^{2} - B = 0.00000$$

$$\left(\frac{N_2\cdot(N_1+1)}{N_1\cdot(N_2+1)}\right)^{3} - C = 0.00000$$

$$\left(\frac{N_2\cdot(N_1+1)}{N_1\cdot(N_2+1)}\right)^{4} - D = 0.00000$$

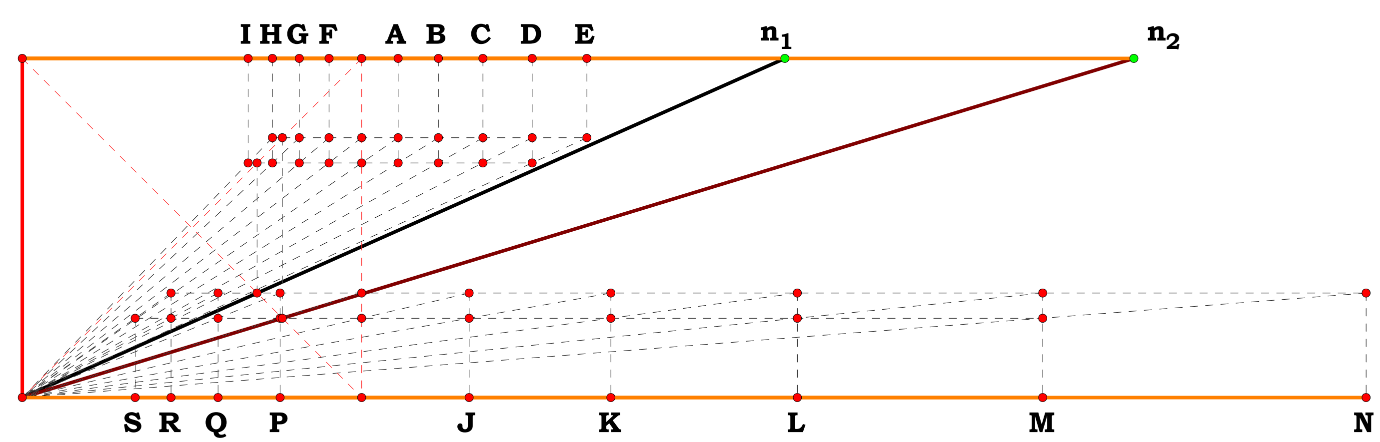
$$\left(\frac{N_2\cdot(N_1+1)}{N_1\cdot(N_2+1)}\right)^{5} - E = 0.00000$$

$$\left(\frac{N_2\cdot(N_1+1)}{N_1\cdot(N_2+1)}\right)^{-1} - F = 0.00000$$

$$\left(\frac{N_2\cdot(N_1+1)}{N_1\cdot(N_2+1)}\right)^{-2} - G = 0.00000$$

$$\left(\frac{N_2\cdot(N_1+1)}{N_1\cdot(N_2+1)}\right)^{-3} - H = 0.00000$$

$$\left(\frac{N_2\cdot(N_1+1)}{N_1\cdot(N_2+1)}\right)^{-4} - I = 0.00000$$



$$\frac{N_2+1}{N_1+1} = 1.31677$$

$N_1 = 2.24615$
$N_2 = 3.27442$

J = 1.31677
K = 1.73387
L = 2.28310
M = 3.00631
N = 3.95861

P = 0.75944
Q = 0.57674
R = 0.43800
S = 0.33263

$$\left(\frac{N_2+1}{N_1+1}\right)^{1} - J = 0.00000$$

$$\left(\frac{N_2+1}{N_1+1}\right)^{2} - K = 0.00000$$

$$\left(\frac{N_2+1}{N_1+1}\right)^{3} - L = 0.00000$$

$$\left(\frac{N_2+1}{N_1+1}\right)^{4} - M = 0.00000$$

$$\left(\frac{N_2+1}{N_1+1}\right)^{5} - N = 0.00000$$

$$\left(\frac{N_2+1}{N_1+1}\right)^{-1} - P = 0.00000$$

$$\left(\frac{N_2+1}{N_1+1}\right)^{-2} - Q = 0.00000$$

$$\left(\frac{N_2+1}{N_1+1}\right)^{-3} - R = 0.00000$$

$$\left(\frac{N_2+1}{N_1+1}\right)^{-4} - S = 0.00000$$

$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2} = 0.83725$$

$$\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1} = 1.12397$$

A = 0.83725
B = 0.94105
C = 1.05771
D = 1.18884
E = 1.33622

F = 0.74490
G = 0.66274
H = 0.58964
I = 0.52461

$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2}\cdot{\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1}}^{0} - A = 0.00000$$

$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2}\cdot{\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1}}^{1} - B = 0.00000$$

$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2}\cdot{\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1}}^{2} - C = 0.00000$$

$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2}\cdot{\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1}}^{3} - D = 0.00000$$

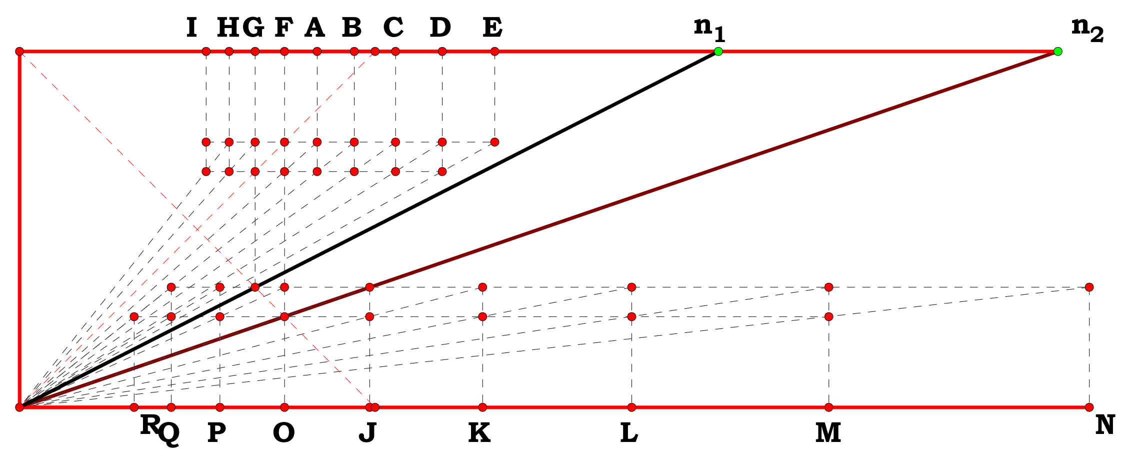
$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2}\cdot{\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1}}^{4} - E = 0.00000$$

$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2}\cdot{\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1}}^{-1} - F = 0.00000$$

$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2}\cdot{\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1}}^{-2} - G = 0.00000$$

$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2}\cdot{\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1}}^{-3} - H = 0.00000$$

$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2}\cdot{\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1}}^{-4} - I = 0.00000$$



$$\frac{N_2}{N_1+1} = 0.98482$$

$$\frac{N_2+1}{N_1+1} = 1.32208$$

N_1 = 1.96510
N_2 = 2.92011

J = 0.98482
K = 1.30202
L = 1.72138
M = 2.27580
N = 3.00879

O = 0.74490
P = 0.56343
Q = 0.42617
R = 0.32235

$$\frac{N_2}{N_1+1}\cdot{\frac{N_2+1}{N_1+1}}^{0} - J = 0.00000$$

$$\frac{N_2}{N_1+1}\cdot{\frac{N_2+1}{N_1+1}}^{1} - K = 0.00000$$

$$\frac{N_2}{N_1+1}\cdot{\frac{N_2+1}{N_1+1}}^{2} - L = 0.00000$$

$$\frac{N_2}{N_1+1}\cdot{\frac{N_2+1}{N_1+1}}^{3} - M = 0.00000$$

$$\frac{N_2}{N_1+1}\cdot{\frac{N_2+1}{N_1+1}}^{4} - N = 0.00000$$

$$\frac{N_2}{N_1+1}\cdot{\frac{N_2+1}{N_1+1}}^{-1} - O = 0.00000$$

$$\frac{N_2}{N_1+1}\cdot{\frac{N_2+1}{N_1+1}}^{-2} - P = 0.00000$$

$$\frac{N_2}{N_1+1}\cdot{\frac{N_2+1}{N_1+1}}^{-3} - Q = 0.00000$$

$$\frac{N_2}{N_1+1}\cdot{\frac{N_2+1}{N_1+1}}^{-4} - R = 0.00000$$

B = 1.31080
C = 1.71820
D = 2.25222
E = 2.95221
F = 3.86977
G = 5.07250

$$\frac{N_1 \cdot (N_2-1)}{N_2 \cdot (N_1-1)} = 1.31080 \qquad \left(\frac{N_1 \cdot (N_2-1)}{N_2 \cdot (N_1-1)}\right)^1 - B = 0.00000$$

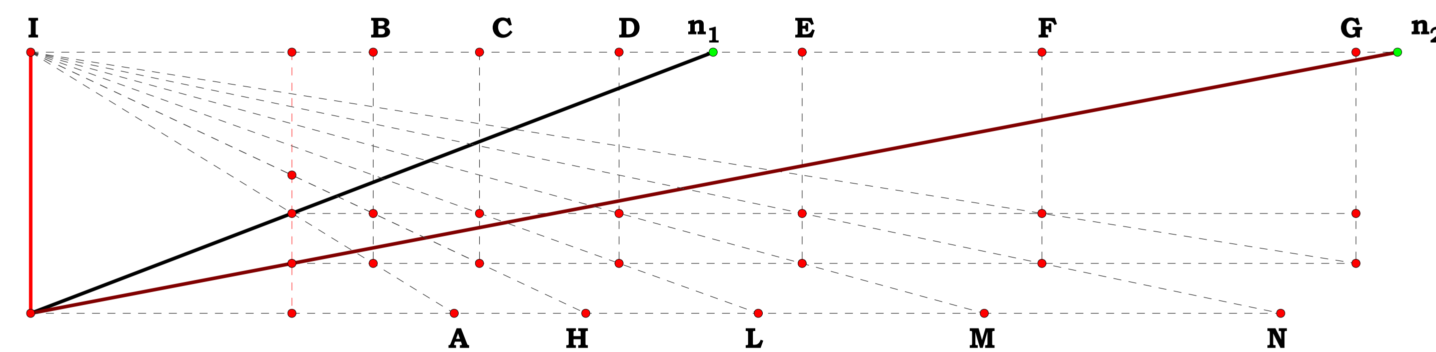
$$\left(\frac{N_1 \cdot (N_2-1)}{N_2 \cdot (N_1-1)}\right)^2 = 1.71820 \qquad \left(\frac{N_1 \cdot (N_2-1)}{N_2 \cdot (N_1-1)}\right)^2 - C = 0.00000$$

$$\left(\frac{N_1 \cdot (N_2-1)}{N_2 \cdot (N_1-1)}\right)^3 = 2.25222 \qquad \left(\frac{N_1 \cdot (N_2-1)}{N_2 \cdot (N_1-1)}\right)^3 - D = 0.00000$$

$$\left(\frac{N_1 \cdot (N_2-1)}{N_2 \cdot (N_1-1)}\right)^4 = 2.95221 \qquad \left(\frac{N_1 \cdot (N_2-1)}{N_2 \cdot (N_1-1)}\right)^4 - E = 0.00000$$

$$\left(\frac{N_1 \cdot (N_2-1)}{N_2 \cdot (N_1-1)}\right)^5 = 3.86977 \qquad \left(\frac{N_1 \cdot (N_2-1)}{N_2 \cdot (N_1-1)}\right)^5 - F = 0.00000$$

$$\left(\frac{N_1 \cdot (N_2-1)}{N_2 \cdot (N_1-1)}\right)^6 = 5.07250 \qquad \left(\frac{N_1 \cdot (N_2-1)}{N_2 \cdot (N_1-1)}\right)^6 - G = 0.00000$$



$$\frac{N_1}{N_1-1} - A = 0.00000$$

$$\frac{N_1^2 \cdot (N_2-1)}{N_2 \cdot (N_1-1)^2} = 2.12423$$

$N_1 = 2.61146$
$N_2 = 5.23175$

A = 1.62056
H = 2.12423
L = 2.78444
M = 3.64985
N = 4.78423

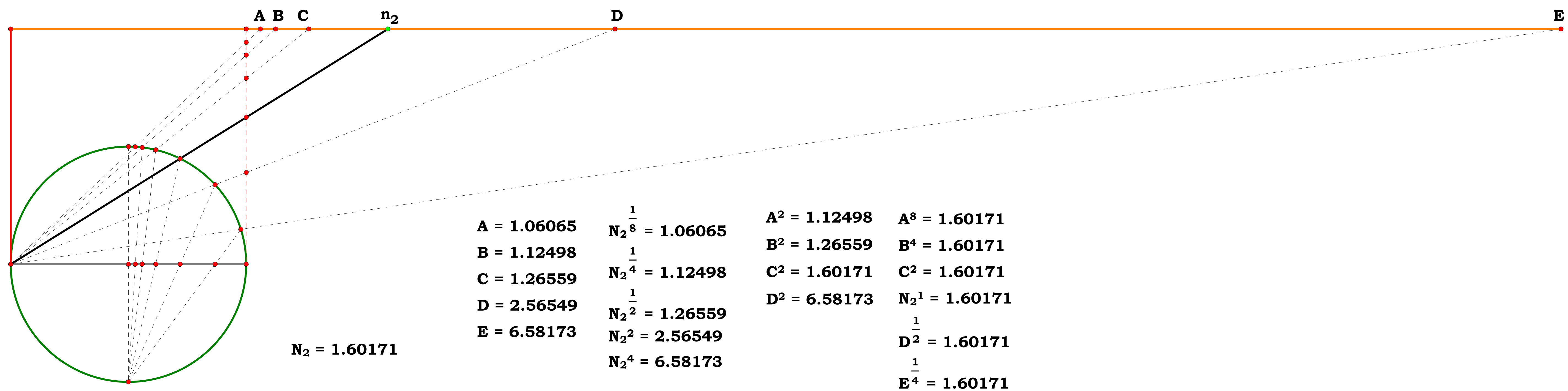
$$\frac{N_1^2 \cdot (N_2-1)}{N_2 \cdot (N_1-1)^2} \cdot \left(\frac{N_1 \cdot (N_2-1)}{N_2 \cdot (N_1-1)}\right)^{-1} = 1.62056 \qquad \left(\frac{N_1^2 \cdot (N_2-1)}{N_2 \cdot (N_1-1)^2} \cdot \left(\frac{N_1 \cdot (N_2-1)}{N_2 \cdot (N_1-1)}\right)^{-1}\right) - A = 0.00000$$

$$\frac{N_1^2 \cdot (N_2-1)}{N_2 \cdot (N_1-1)^2} \cdot \left(\frac{N_1 \cdot (N_2-1)}{N_2 \cdot (N_1-1)}\right)^{0} = 2.12423 \qquad \left(\frac{N_1^2 \cdot (N_2-1)}{N_2 \cdot (N_1-1)^2} \cdot \left(\frac{N_1 \cdot (N_2-1)}{N_2 \cdot (N_1-1)}\right)^{0}\right) - H = 0.00000$$

$$\frac{N_1^2 \cdot (N_2-1)}{N_2 \cdot (N_1-1)^2} \cdot \left(\frac{N_1 \cdot (N_2-1)}{N_2 \cdot (N_1-1)}\right)^{1} = 2.78444 \qquad \left(\frac{N_1^2 \cdot (N_2-1)}{N_2 \cdot (N_1-1)^2} \cdot \left(\frac{N_1 \cdot (N_2-1)}{N_2 \cdot (N_1-1)}\right)^{1}\right) - L = 0.00000$$

$$\frac{N_1^2 \cdot (N_2-1)}{N_2 \cdot (N_1-1)^2} \cdot \left(\frac{N_1 \cdot (N_2-1)}{N_2 \cdot (N_1-1)}\right)^{2} = 3.64985 \qquad \left(\frac{N_1^2 \cdot (N_2-1)}{N_2 \cdot (N_1-1)^2} \cdot \left(\frac{N_1 \cdot (N_2-1)}{N_2 \cdot (N_1-1)}\right)^{2}\right) - M = 0.00000$$

$$\frac{N_1^2 \cdot (N_2-1)}{N_2 \cdot (N_1-1)^2} \cdot \left(\frac{N_1 \cdot (N_2-1)}{N_2 \cdot (N_1-1)}\right)^{3} = 4.78423 \qquad \left(\frac{N_1^2 \cdot (N_2-1)}{N_2 \cdot (N_1-1)^2} \cdot \left(\frac{N_1 \cdot (N_2-1)}{N_2 \cdot (N_1-1)}\right)^{3}\right) - N = 0.00000$$



$N_2 = 1.60171$

$A = 1.06065$

$B = 1.12498$

$C = 1.26559$

$D = 2.56549$

$E = 6.58173$

$N_2^{\frac{1}{8}} = 1.06065$

$N_2^{\frac{1}{4}} = 1.12498$

$N_2^{\frac{1}{2}} = 1.26559$

$N_2^{2} = 2.56549$

$N_2^{4} = 6.58173$

$A^2 = 1.12498$

$B^2 = 1.26559$

$C^2 = 1.60171$

$D^2 = 6.58173$

$A^8 = 1.60171$

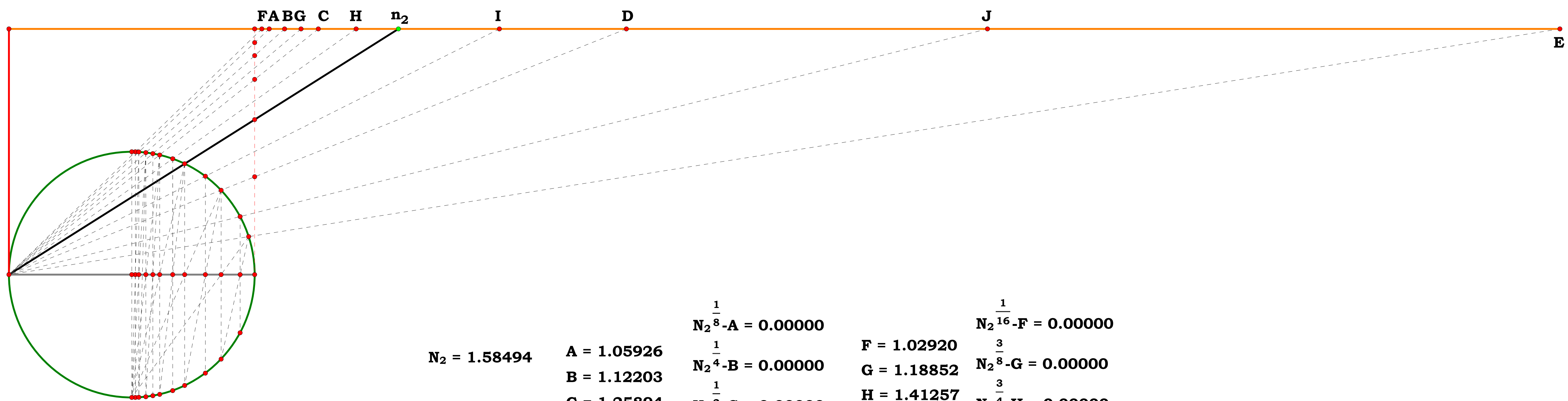
$B^4 = 1.60171$

$C^2 = 1.60171$

$N_2^{1} = 1.60171$

$D^{\frac{1}{2}} = 1.60171$

$E^{\frac{1}{4}} = 1.60171$



$N_2 = 1.58494$

$A = 1.05926$

$B = 1.12203$

$C = 1.25894$

$D = 2.51204$

$E = 6.31034$

$N_2^{\frac{1}{8}} - A = 0.00000$

$N_2^{\frac{1}{4}} - B = 0.00000$

$N_2^{\frac{1}{2}} - C = 0.00000$

$N_2^{2} - D = 0.00000$

$N_2^{4} - E = 0.00000$

$F = 1.02920$

$G = 1.18852$

$H = 1.41257$

$I = 1.99535$

$J = 3.98144$

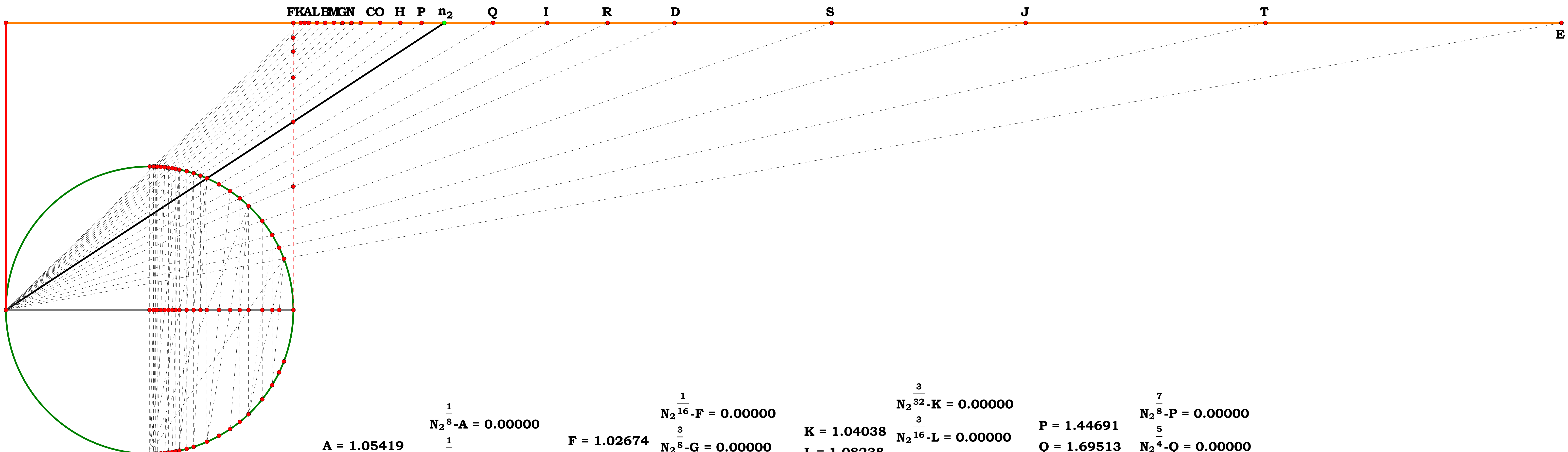
$N_2^{\frac{1}{16}} - F = 0.00000$

$N_2^{\frac{3}{8}} - G = 0.00000$

$N_2^{\frac{3}{4}} - H = 0.00000$

$N_2^{\frac{3}{2}} - I = 0.00000$

$N_2^{3} - J = 0.00000$



$N_2 = 1.52533$

$A = 1.05419$
$B = 1.11132$
$C = 1.23504$
$D = 2.32662$
$E = 5.41318$

$N_2^{\frac{1}{8}} - A = 0.00000$
$N_2^{\frac{1}{4}} - B = 0.00000$
$N_2^{\frac{1}{2}} - C = 0.00000$
$N_2^{2} - D = 0.00000$
$N_2^{4} - E = 0.00000$

$F = 1.02674$
$G = 1.17155$
$H = 1.37253$
$I = 1.88384$
$J = 3.54886$

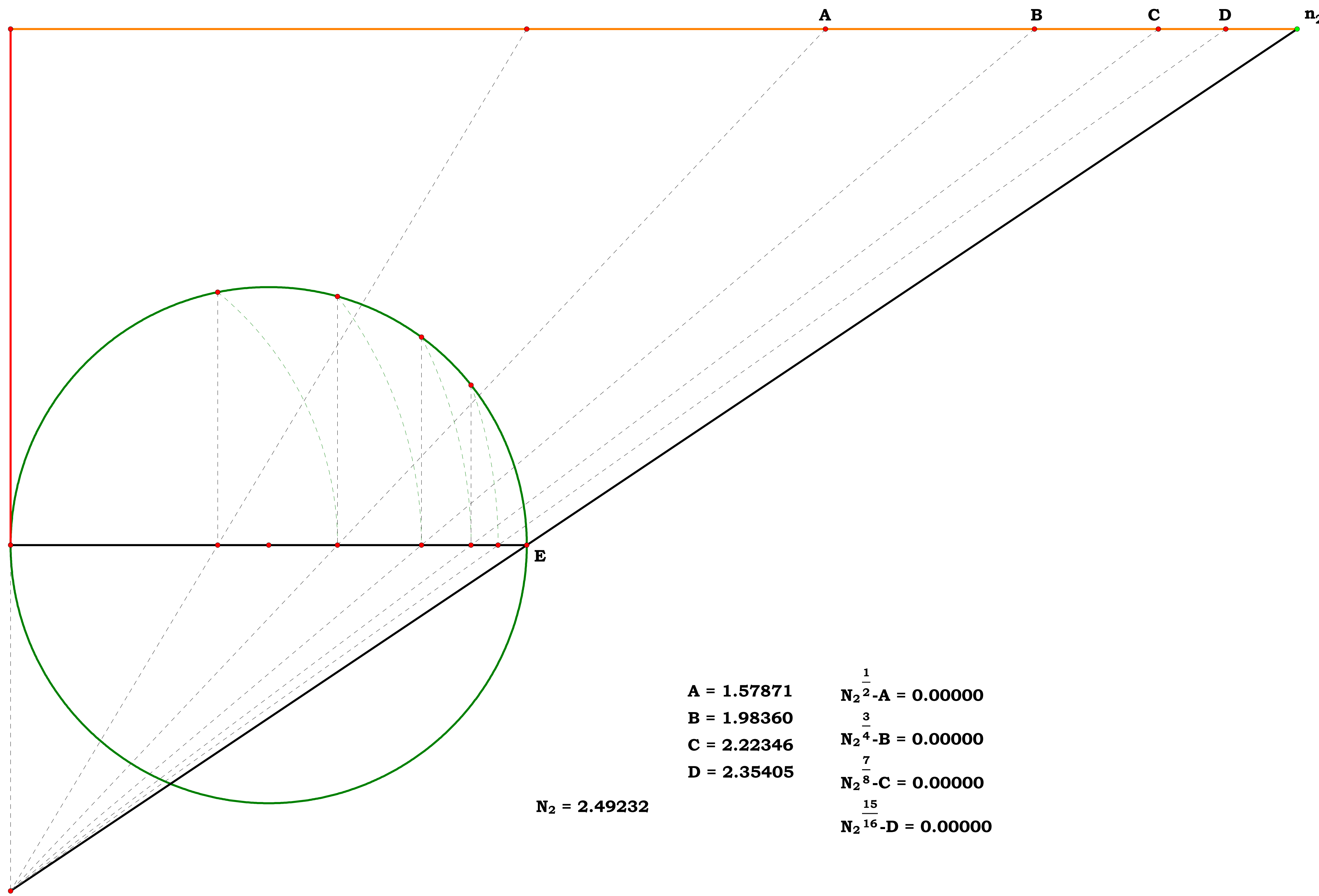
$N_2^{\frac{1}{16}} - F = 0.00000$
$N_2^{\frac{3}{8}} - G = 0.00000$
$N_2^{\frac{3}{4}} - H = 0.00000$
$N_2^{\frac{3}{2}} - I = 0.00000$
$N_2^{3} - J = 0.00000$

$K = 1.04038$
$L = 1.08238$
$M = 1.14104$
$N = 1.20288$
$O = 1.30197$

$N_2^{\frac{3}{32}} - K = 0.00000$
$N_2^{\frac{3}{16}} - L = 0.00000$
$N_2^{\frac{5}{16}} - M = 0.00000$
$N_2^{\frac{7}{16}} - N = 0.00000$
$N_2^{\frac{5}{8}} - O = 0.00000$

$P = 1.44691$
$Q = 1.69513$
$R = 2.09356$
$S = 2.87348$
$T = 4.38299$

$N_2^{\frac{7}{8}} - P = 0.00000$
$N_2^{\frac{5}{4}} - Q = 0.00000$
$N_2^{\frac{7}{4}} - R = 0.00000$
$N_2^{\frac{5}{2}} - S = 0.00000$
$N_2^{\frac{7}{2}} - T = 0.00000$

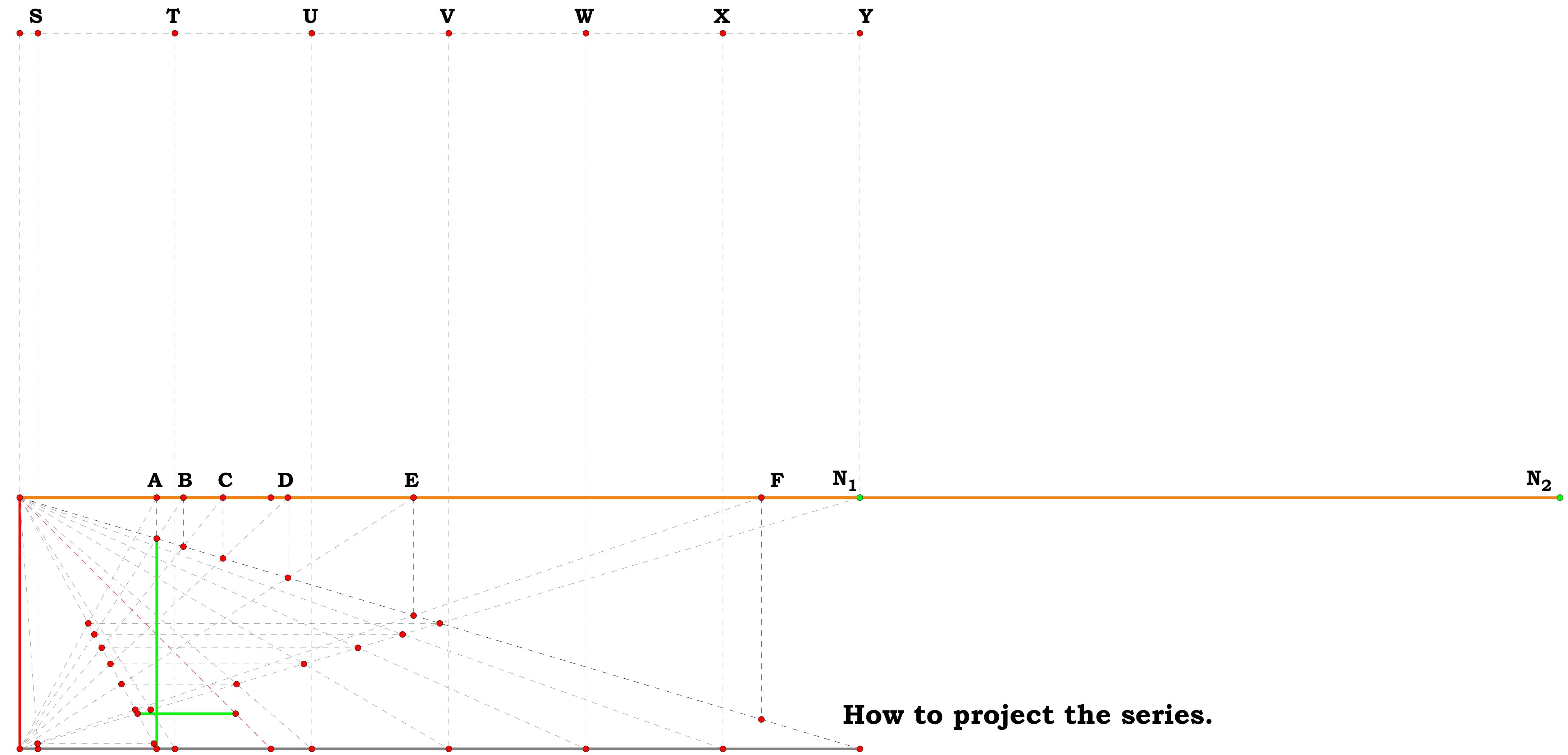

A
B
C
D
n_2
E
A = 1.57871
B = 1.98360
C = 2.22346
D = 2.35405
$N_2 = 2.49232$
$N_2^{\frac{1}{2}}$-A = 0.00000
$N_2^{\frac{3}{4}}$-B = 0.00000
$N_2^{\frac{7}{8}}$-C = 0.00000
$N_2^{\frac{15}{16}}$-D = 0.00000

Introduction to Fractional Series.

Circle
Show Lines
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

Show Segment
Hide Segment

$N_1 = 3.34477$
$N_2 = 6.13288$



$$\frac{N_1}{N_2} = 0.54538$$

$$\frac{2 \cdot N_1}{N_2} = 1.09077$$

$$\frac{3 \cdot N_1}{N_2} = 1.63615$$

$$\frac{4 \cdot N_1}{N_2} = 2.18153$$

$x_S = 0.07247$
$x_T = 0.61785$

$x_U = 1.16324$
$x_V = 1.70862$
$x_W = 2.25400$
$x_X = 2.79939$
$x_Y = 3.34477$

Points

Present 2 Actions

Sequence 14 Actions

Circle
Show Lines
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

$\frac{N_1}{N_2-0} = 0.66667$

$\frac{N_1}{N_2-1} = 0.80000$

$\frac{N_1}{N_2-2} = 1.00000$

$\frac{A}{N_1} = 0.16667$

$\frac{B}{N_1} = 0.20000$

$\frac{C}{N_1} = 0.25000$

$\frac{D}{N_1} = 0.33333$

$\frac{1}{N_2-0} = 0.16667$

$\frac{1}{N_2-1} = 0.20000$

$\frac{1}{N_2-2} = 0.25000$

$\frac{1}{N_2-3} = 0.33333$

$\frac{\frac{N_1}{N_2-0}}{\frac{1}{N_2-0}} = 4.00000$

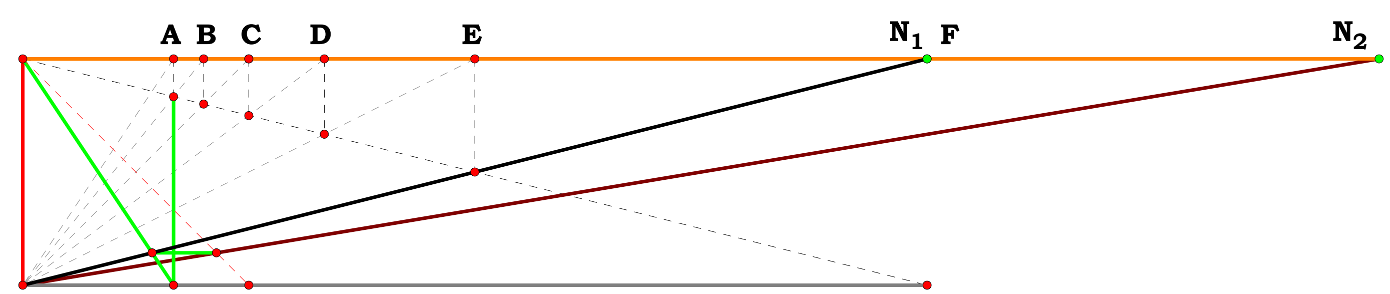
$\frac{\frac{N_1}{N_2-1}}{\frac{1}{N_2-1}} = 4.00000$

Fractional series created where the starting value is N_1/N_2

Option Base of Index is 0.

$N_2-I_1 = 0.00000$

$I_1 = 6$



$N_1 = 4.00000$

$N_2 = 6.00000$

$A = 0.66667$

$B = 0.80000$

$C = 1.00000$

$D = 1.33333$

$E = 2.00000$

$F = 4.00000$

Points

Hide Segments

$\frac{N_1}{N_2} = 0.66667$

$\frac{N_1}{N_2}-A = 0.00000$

$\frac{1}{(N_2-I_1)} = -1.73215\cdot10^{13}$

$\frac{1}{(N_2-I_1)}\cdot N_1 = -6.92861\cdot10^{13}$

Present 2 Actions
Present 4 Actions
Sequence 14 Actions
Hide Action Buttons

Option Base of Index is 0.

$N_1 = 7.15170$ $I_1 = 3$

$N_2 = 3.00000$

$N_3 = 2.00000$

$N_1 \cdot N_3 + N_1 = 21.45511$

$N_2 \cdot N_3 + N_2 = 9.00000$

Total number of indexes.

$(N_3+1) \cdot (N_2-1) = 6.00000$

$iT_1 = 6$

Fraction at last index.

$$\frac{N_1 \cdot N_3 + N_1}{(N_2 \cdot N_3 + N_2) - iT_1} = 7.15170$$

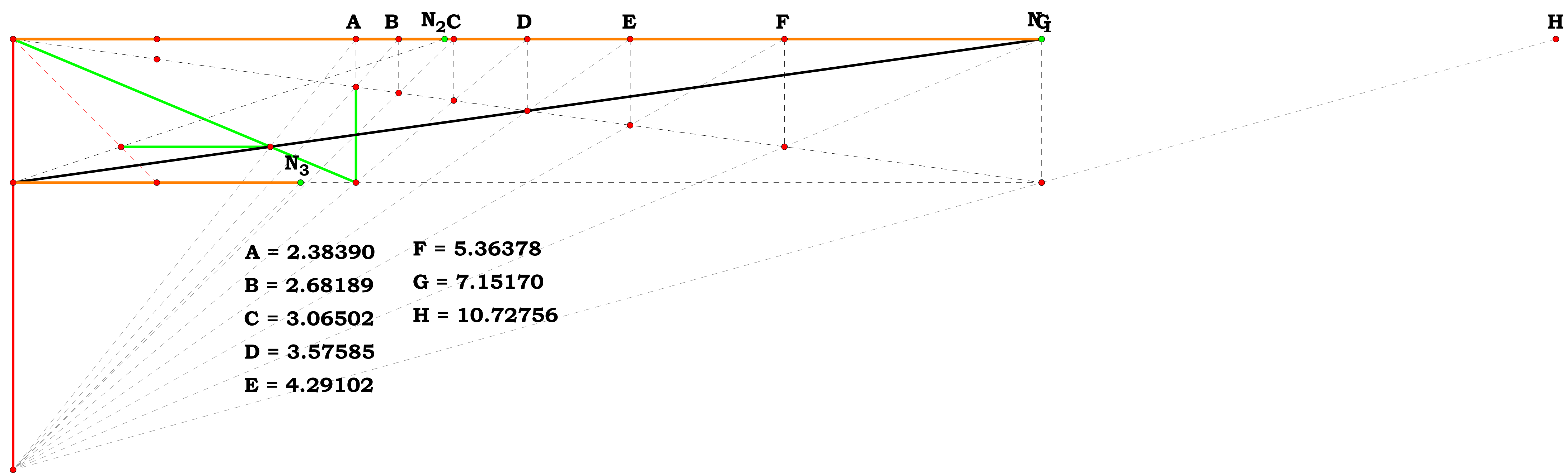
$$\frac{N_1 \cdot N_3 + N_1}{(N_2 \cdot N_3 + N_2) - iT_1} - N_1 = 0.00000$$

Starting Fraction.

$$\frac{(N_1 \cdot N_3 + N_1)}{(N_2 \cdot N_3 + N_2)} = 2.38390$$

Fraction at index

$$\frac{N_1 \cdot N_3 + N_1}{(N_2 \cdot N_3 + N_2) - I_1} = 3.57585$$



A = 2.38390

B = 2.68189

C = 3.06502

D = 3.57585

E = 4.29102

F = 5.36378

G = 7.15170

H = 10.72756

Fractional series where the starting value is N_1N_2/N_1N_2.

$\frac{N_1}{A} = 6.72867$ $\frac{N_1}{F} = 1.00000$

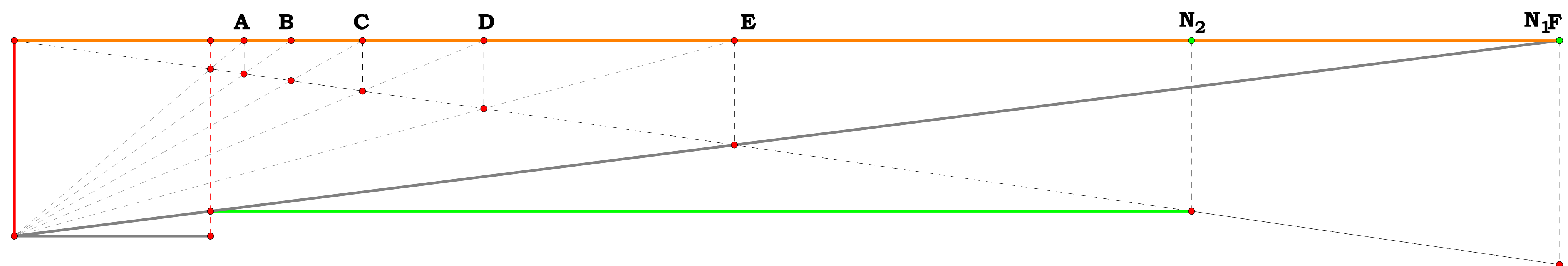
$\frac{N_1}{B} = 5.58294$

$\frac{N_1}{C} = 4.43720$

$\frac{N_1}{D} = 3.29147$

$\frac{N_1}{E} = 2.14573$

Option Base of Index is 1



$N_1 = 7.87441$

$N_2 = 6.00000$

$\frac{N_1 \cdot N_2}{N_1 \cdot N_2} = 1.00000$

$I_1 = 4$

$\frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2 - I_1 \cdot (N_1 - 1))} = 2.39237$

$N_1 \cdot N_2 = 47.24644$

$N_1 \cdot N_2 - I_1 \cdot (N_1 - 1) = 19.74881$

$\frac{(N_1 \cdot N_2)}{(N_1 \cdot N_2)} = 1.00000$

$A = 1.17028$

$B = 1.41044$

$C = 1.77463$

$D = 2.39237$

$E = 3.66980$

$F = 7.87441$

Starting values. See previous plate.

$$\frac{N_1 \cdot N_2}{N_1 \cdot N_2} = 1.00000 \qquad \frac{N_1 \cdot N_3}{N_1 \cdot N_3} = 1.00000$$

$N_2 \cdot N_3 = 40.00000$

$N_2 - N_3 = 3.00000$

Option Base of Index is 1

$N_1 = 6.78917$

$N_2 = 8.00000$

$N_3 = 5.00000$

$I_1 = 8$

Total Number of Indexs.

$$\frac{N_2 \cdot N_3}{N_2 - N_3} = 13.33333 \qquad iT_1 = 13.33333$$

Fraction at Index.

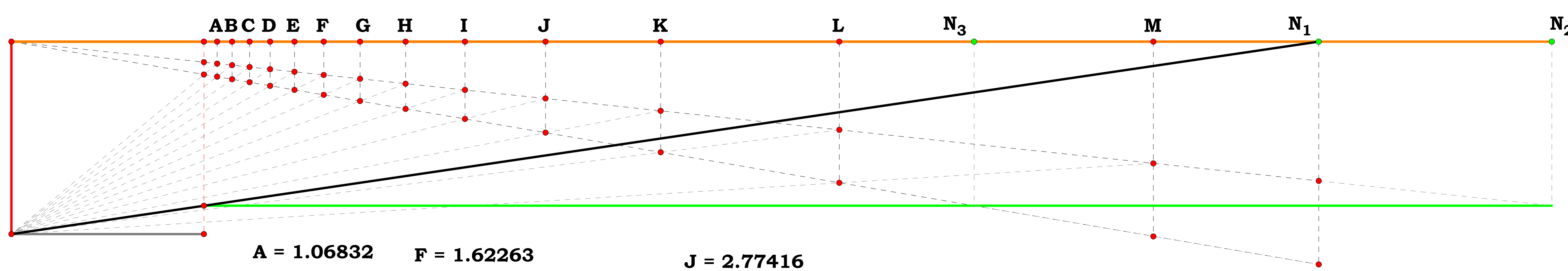
$$\frac{N_1 \cdot N_2 \cdot N_3}{N_1 \cdot N_2 \cdot N_3 - I_1 \cdot (N_1 - 1) \cdot (N_2 - N_3)} = 2.04760$$

N_1 minus last index.

$$\frac{N_1 \cdot N_2 \cdot N_3}{N_1 \cdot N_2 \cdot N_3 - iT_1 \cdot (N_1 - 1) \cdot (N_2 - N_3)} - N_1 = 0.00000$$

Number of times fraction at index divides N_1

$$\frac{N_1 \cdot (N_1 \cdot N_2 \cdot N_3 - I_1 \cdot (N_1 - 1) \cdot (N_2 - N_3))}{N_1 \cdot N_2 \cdot N_3} = 3.31567$$



A = 1.06832

B = 1.14667

C = 1.23741

D = 1.34375

E = 1.47008

F = 1.62263

G = 1.81052

H = 2.04760

I = 2.35614

J = 2.77416

K = 3.37249

L = 4.29989

M = 5.93081

Exponential Fractional Series:

N -> 0

N -> 1

N -> 2

N -> 3

N -> 4

N -> 5

N -> 6

N -> 7

N -> 8

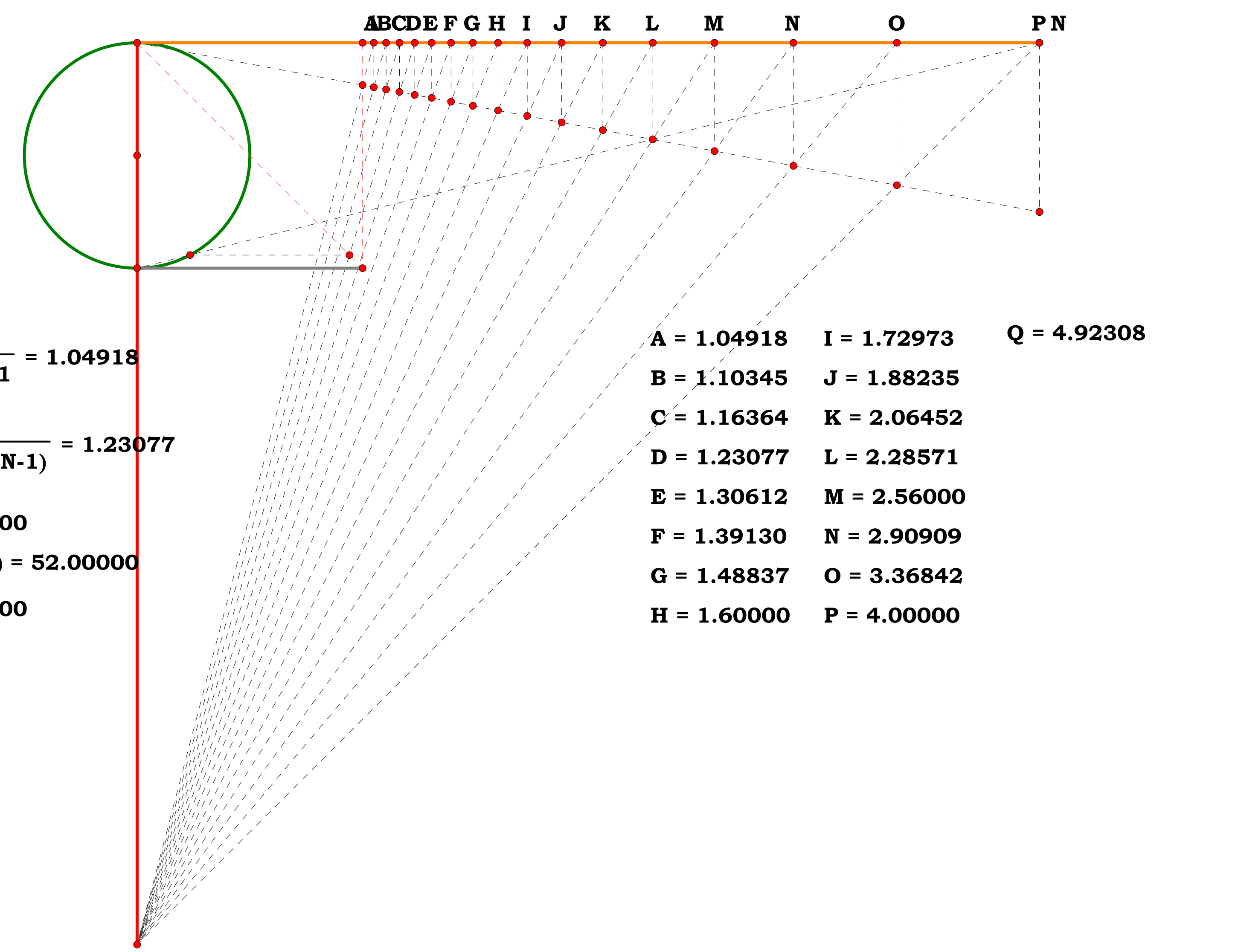
N -> 9

N -> 10

N -> 11

N = 4.00000

Show Objects



$In_{dx} = 4$

$$\frac{N^3}{(N^3-N)+1} = 1.04918$$

$$\frac{N^3}{N^3-In_{dx}\cdot(N-1)} = 1.23077$$

$N^3 = 64.00000$

$N^3-In_{dx}\cdot(N-1) = 52.00000$

$N^2 = 16.00000$

A = 1.04918
B = 1.10345
C = 1.16364
D = 1.23077
E = 1.30612
F = 1.39130
G = 1.48837
H = 1.60000
I = 1.72973
J = 1.88235
K = 2.06452
L = 2.28571
M = 2.56000
N = 2.90909
O = 3.36842
P = 4.00000

Q = 4.92308

Free proportionals from start to finish.

Circle | Points | Circle | Points | Circle | Points

Show Lines | Hide Objects | Show Lines | Hide Objects | Show Lines

0	0	0	0	0	0
1	1	1	1	1	1
2	2	2	2	2	2
3	3	3	3	3	3
4	4	4	4	4	4
5	5	5	5	5	5
6	6	6	6	6	6
7	7	7	7	7	7
8	8	8	8	8	8
9	9	9	9	9	9
10	10	10	10	10	10
11	11	11	11	11	11
12	12	12	12	12	12
13	13	13	13	13	13
14	14	14	14	14	14
15	15	15	15	15	15

$In_{dx} = 0$

$$\frac{26.25000}{26.25000} = 1.00000$$

$B_3 = 6.17647$

$$\frac{N_1}{B_3 - N_1} + 1 = 5.25000$$

$$\frac{7}{3.75} = 1.86667$$

A = 1.03960
B = 1.08247
C = 1.12903
D = 1.17978
E = 1.23529
F = 1.29630
G = 1.36364
H = 1.43836
I = 1.52174
J = 1.61538
K = 1.72131
L = 1.84211
M = 1.98113
N = 2.14286
O = 2.33333
P = 2.56098
Q = 2.83784
R = 3.18182
S = 3.62069
T = 4.20000
U = 5.00000

$N_1 = 5.00000$

$N_2 = 0.00000$

$n_a = 7.00000$

$n_b = 5.00000$

$r_{da} = 1.40000$

$$\frac{n_a}{n_b} = 1.40000$$

$$N_1 \cdot \frac{n_a}{n_b} = 7.00000$$

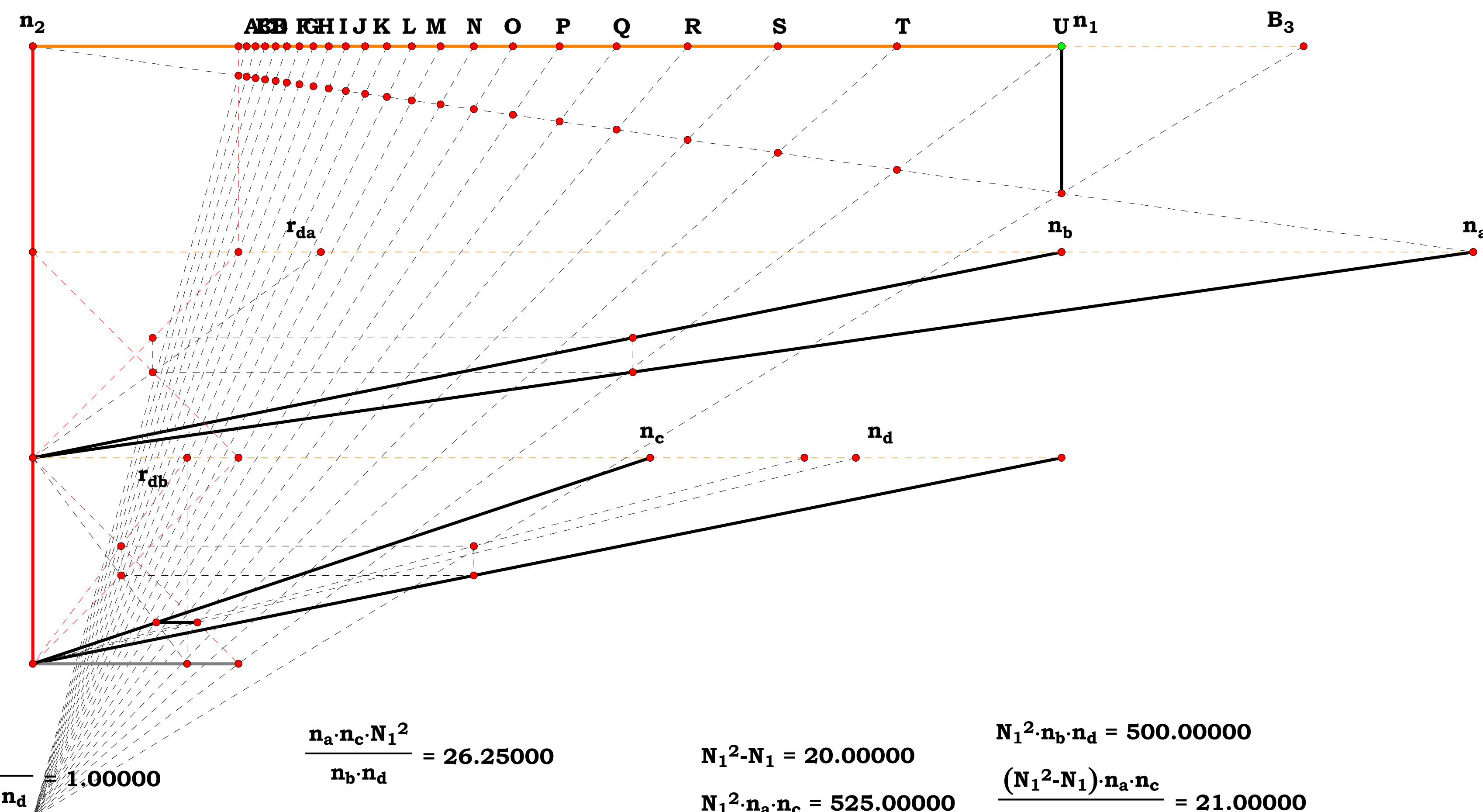
$n_c = 3.00000$

$n_d = 4.00000$

$r_{db} = 0.75000$

$$\frac{n_c}{n_d} = 0.75000$$

$$\frac{n_c}{n_d} \cdot N_1 = 3.75000$$



$$\frac{N_1^2 \cdot n_a \cdot n_c}{N_1^2 \cdot n_a \cdot n_c - In_{dx} \cdot n_b \cdot n_d} = 1.00000$$

$$\frac{n_a \cdot n_c \cdot N_1^2}{n_b \cdot n_d} = 26.25000$$

$$\frac{n_a \cdot n_c \cdot N_1^2}{n_b \cdot n_d} - In_{dx} = 26.25000$$

$N_1^2 - N_1 = 20.00000$

$N_1^2 \cdot n_a \cdot n_c = 525.00000$

$N_1^2 \cdot n_b \cdot n_d = 500.00000$

$$\frac{(N_1^2 - N_1) \cdot n_a \cdot n_c}{n_b \cdot n_d} = 21.00000$$

Circle Points Circle Points Circle Points

Show Lines Hide Objects Show Lines Hide Objects Show Lines

0	0	0	0	0	0
1	1	1	1	1	1
2	2	2	2	2	2
3	3	3	3	3	3
4	4	4	4	4	4
5	5	5	5	5	5
6	6	6	6	6	6
7	7	7	7	7	7
8	8	8	8	8	8
9	9	9	9	9	9
10	10	10	10	10	10
11	11	11	11	11	11
12	12	12	12	12	12
13	13	13	13	13	13
14	14	14	14	14	14
15	15	15	15	15	15

$In_{dx} = 0$

$\frac{26.25000}{26.25000} = 1.00000$

$B_3 = 6.17647$

$\frac{N_1}{B_3 - N_1} + 1 = 5.25000$

$\frac{7}{3.75} = 1.86667$

A = 1.03960, B = 1.08247, C = 1.12903, D = 1.17978, E = 1.23529, F = 1.29630, G = 1.36364, H = 1.43836, I = 1.52174

J = 1.61538, K = 1.72131, L = 1.84211, M = 1.98113, N = 2.14286, O = 2.33333, P = 2.56098, Q = 2.83784, R = 3.18182

S = 3.62069, T = 4.20000, U = 5.00000

26.25+5.25 = 31.50000

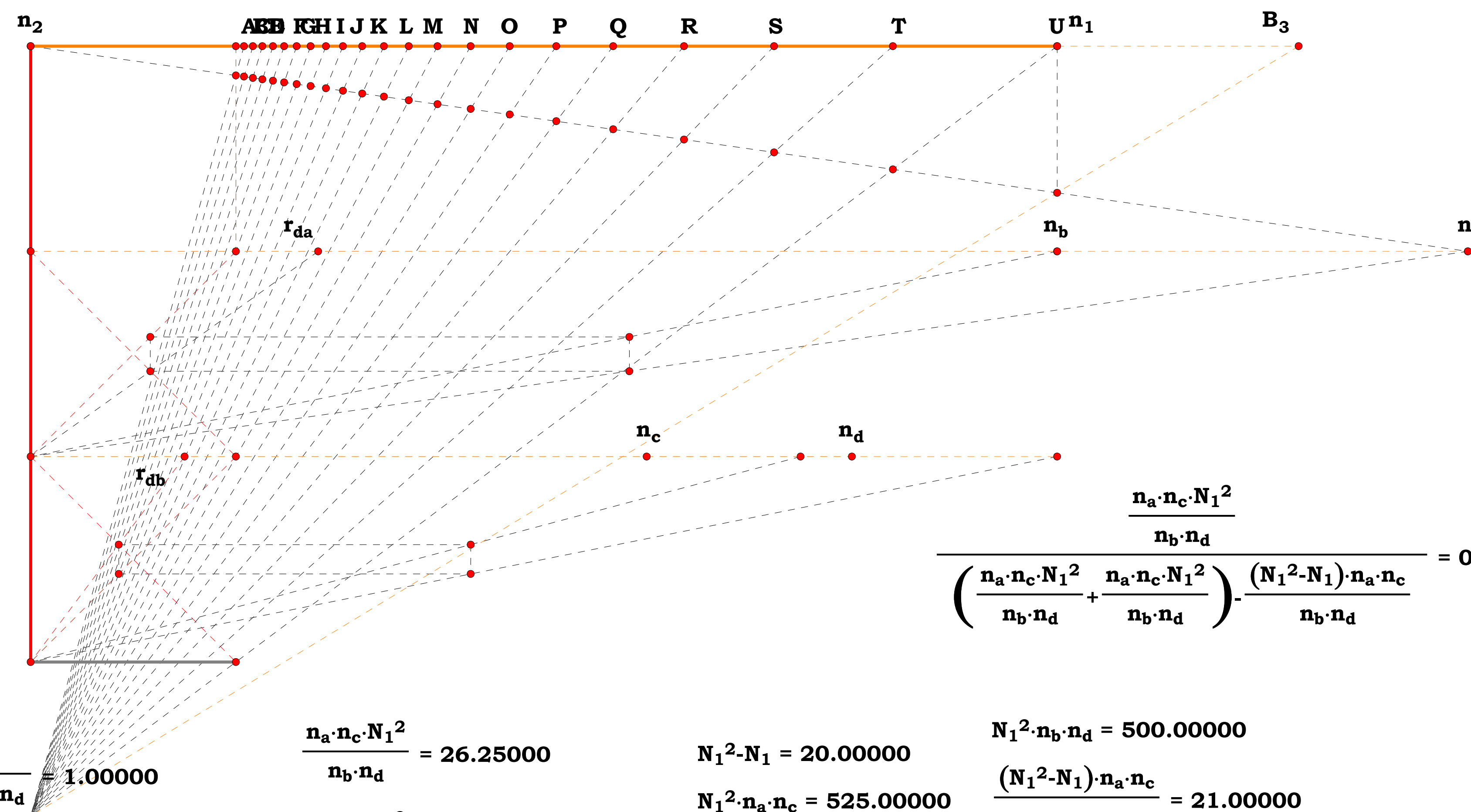
25.25+6.25 = 31.50000

24.25+7.25 = 31.50000

$\frac{26.25}{(26.25+5.25)} = 0.83333$

$\frac{26.25}{(25.25+6.25)} = 0.83333$

$\frac{26.25}{(24.25+7.25)} = 0.83333$



$N_1 = 5.00000$

$N_2 = 0.00000$

$n_a = 7.00000$

$n_b = 5.00000$

$r_{da} = 1.40000$

$\frac{n_a}{n_b} = 1.40000$

$N_1 \cdot \frac{n_a}{n_b} = 7.00000$

$n_c = 3.00000$

$n_d = 4.00000$

$r_{db} = 0.75000$

$\frac{n_c}{n_d} = 0.75000$

$\frac{n_c}{n_d} \cdot N_1 = 3.75000$

$\frac{N_1^2 \cdot n_a \cdot n_c}{N_1^2 \cdot n_a \cdot n_c - In_{dx} \cdot n_b \cdot n_d} = 1.00000$

$\frac{\frac{n_a \cdot n_c \cdot N_1^2}{n_b \cdot n_d}}{\left(\frac{n_a \cdot n_c \cdot N_1^2}{n_b \cdot n_d} + \frac{n_a \cdot n_c \cdot N_1^2}{n_b \cdot n_d}\right) - \frac{(N_1^2 - N_1) \cdot n_a \cdot n_c}{n_b \cdot n_d}} = 0.83333$

$\frac{N_1}{N_1 + 1} = 0.83333$

$\frac{m_3}{m_3 - 1} = 1.03960$

$\frac{n_a \cdot n_c \cdot N_1^2}{n_b \cdot n_d} = 26.25000$

$\frac{n_a \cdot n_c \cdot N_1^2}{n_b \cdot n_d} - In_{dx} = 26.25000$

$N_1^2 - N_1 = 20.00000$

$N_1^2 \cdot n_a \cdot n_c = 525.00000$

$N_1^2 \cdot n_b \cdot n_d = 500.00000$

$\frac{(N_1^2 - N_1) \cdot n_a \cdot n_c}{n_b \cdot n_d} = 21.00000$

Recursing from a series itself.

Circle

Show Lines

0

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

$N_1 = 4.00000$

$$\frac{N_1^2}{N_1^2 - I_{ndx} \cdot (N_1 - 1)} = 4.00000$$

$I_{ndx} = 4$

$N_1 \cdot (N_1 - 1) + 1 = 13.00000$

$$\frac{N_1^3 - N_1 \cdot (N_1 - 1)}{N_1^3 - (N_1 - 1) \cdot (N_1 + I_{ndx})} = 1.30000$$

L = 1.06122

M = 1.13043

N = 1.20930

O = 1.30000

P = 1.40541

Q = 1.52941

R = 1.67742

S = 1.85714

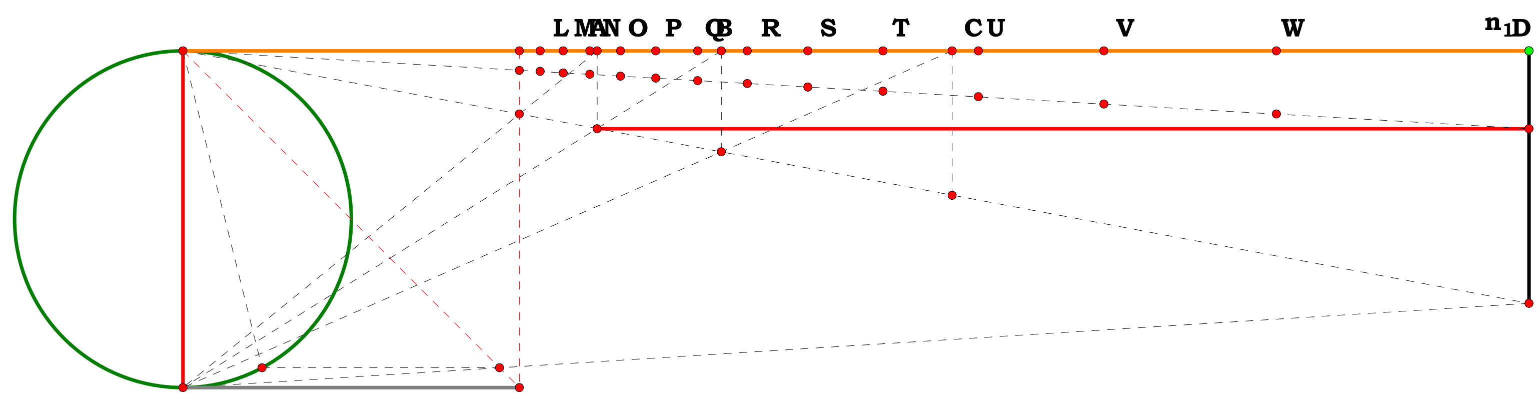
T = 2.08000

U = 2.36364

V = 2.73684

W = 3.25000

X = 4.00000



Hide Objects

Hide Objects

Hide Objects

Hide Objects

Hide Objects

$N_1 = 4.00000$

Points

A = 1.23077

B = 1.60000

C = 2.28571

D = 4.00000

Circle
Show Lines
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
$N_1 = 6.00000$
Points

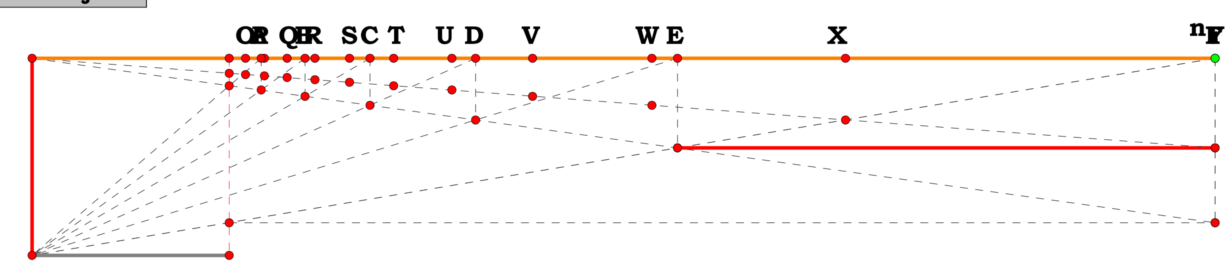
$I_{ndx} = 3$

$$\frac{N_1^2}{N_1^2 - I_{ndx} \cdot (N_1 - 1)} = 1.71429$$

$$\frac{2 \cdot N_1^2 - N_1}{(2 \cdot N_1^2 - I_{ndx} \cdot N_1 - N_1) + I_{ndx}} = 1.29412$$

Hide Objects
Hide Objects
Hide Objects
Show Objects

O = 1.08197
P = 1.17857
Q = 1.29412
R = 1.43478
S = 1.60976
T = 1.83333
U = 2.12903
V = 2.53846
W = 3.14286
X = 4.12500
Y = 6.00000
Z = 11.00000
$x_{A_1} = 66.00000$
$x_{B_1} = -16.50000$
$x_{C_1} = -7.33333$
$x_{D_1} = -4.71429$
$x_{E_1} = -3.47368$
$x_{F_1} = -2.75000$
$x_{G_1} = -2.27586$



A = 1.16129
B = 1.38462
C = 1.71429
D = 2.25000
E = 3.27273
F = 6.00000
G = 36.00000

Circle
Show Lines
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

$N_1 = 5.00000$

Points

Circle
Show Lines
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

$n_3 = 4.00000$

Points

$I_{ndx} = 3$

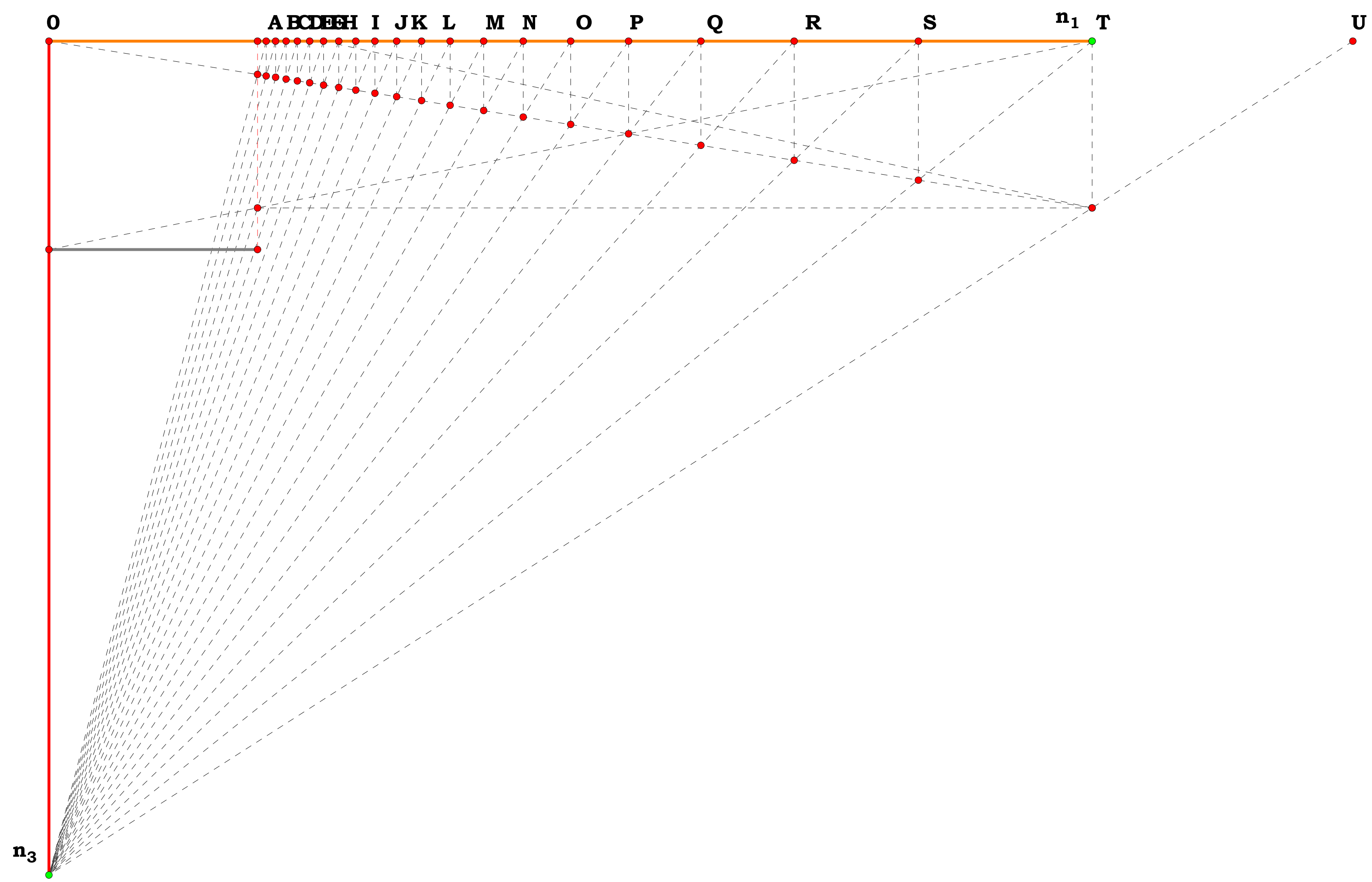
$N_1 \cdot n_3 = 20.00000$

$N_1{}^2 \cdot n_3 = 100.00000$

$N_1{}^2 \cdot n_3 - I_{ndx} \cdot (N_1 - 1) = 88.00000$

$$\frac{(N_1{}^2 \cdot n_3)}{(N_1{}^2 \cdot n_3 - I_{ndx} \cdot (N_1 - 1))} = 1.13636$$

A = 1.04167
B = 1.08696
C = 1.13636
D = 1.19048
E = 1.25000
F = 1.31579
G = 1.38889
H = 1.47059
I = 1.56250
J = 1.66667
K = 1.78571
L = 1.92308
M = 2.08333
N = 2.27273
O = 2.50000
P = 2.77778
Q = 3.12500
R = 3.57143
S = 4.16667
T = 5.00000
U = 6.25000



Projecting a fractional series.

Projecting the series produces even divisions often with a remainder.

Index is Base 0

Indexs: $I_{ndx} = 8$ $C_{indx} = 1.00000$

Number of div. by difference at an index.

$$\frac{(I_{ndx} \cdot N_2 - N_1 \cdot N_3) \cdot ((I_{ndx} \cdot N_2 + N_2) - N_1 \cdot N_3)}{N_1 \cdot N_2} = 0.00000$$

Total number of fractions.

$$\frac{N_1 \cdot N_3}{N_2} = 9.00000 \qquad \frac{N_1 \cdot N_3}{N_2} = 9.00000$$

Fraction at Index:

Num: $N_1 \cdot N_3 - I_{ndx} \cdot N_2 = 2.00000$

Den: $N_1 = 3.00000$

$$\frac{(N_1 \cdot N_3 - I_{ndx} \cdot N_2)}{N_1} = 0.66667$$

Fraction at Compliment:

$$\frac{N_1 \cdot N_3 - C_{indx} \cdot N_2}{N_1} = 5.33333$$

$$\frac{(N_1 \cdot N_3 - I_{ndx} \cdot N_2)}{N_1} + \frac{N_1 \cdot N_3 - C_{indx} \cdot N_2}{N_1} = 6.00000$$

N[1] -> 0	N[2] -> 0	N[2] -> 0
N[1] -> 1	N[2] -> 1	N[2] -> 1
N[1] -> 2	N[2] -> 2	N[2] -> 2
N[1] -> 3	N[2] -> 3	N[2] -> 3
N[1] -> 4	N[2] -> 4	N[2] -> 4
N[1] -> 5	N[2] -> 5	N[2] -> 5
N[1] -> 6	N[2] -> 6	N[2] -> 6
N[1] -> 7	N[2] -> 7	N[2] -> 7
N[1] -> 8	N[2] -> 8	N[2] -> 8
N[1] -> 9	N[2] -> 9	N[2] -> 9
N[1] -> 10	N[2] -> 10	N[2] -> 10
N[1] -> 11	N[2] -> 11	N[2] -> 11

$N_1 = 3.00000$

$N_2 = 2.00000$

$N_3 = 6.00000$

Present 2 Actions

$$\frac{N_3}{N_3+1} = 0.85714$$

$$\frac{N_3}{1} = 6.00000$$

$$\frac{N_3}{A} = 5.33333$$

$$\frac{N_3}{B} = 4.66667$$

$$\frac{N_3}{C} = 4.00000$$

$$\frac{N_3}{D} = 3.33333$$

$$\frac{N_3}{E} = 2.66667$$

$$\frac{N_3}{F} = 2.00000$$

$$\frac{N_3}{G} = 1.33333$$

$O_2 = 6.00000$ $I_2 = 2.00000$

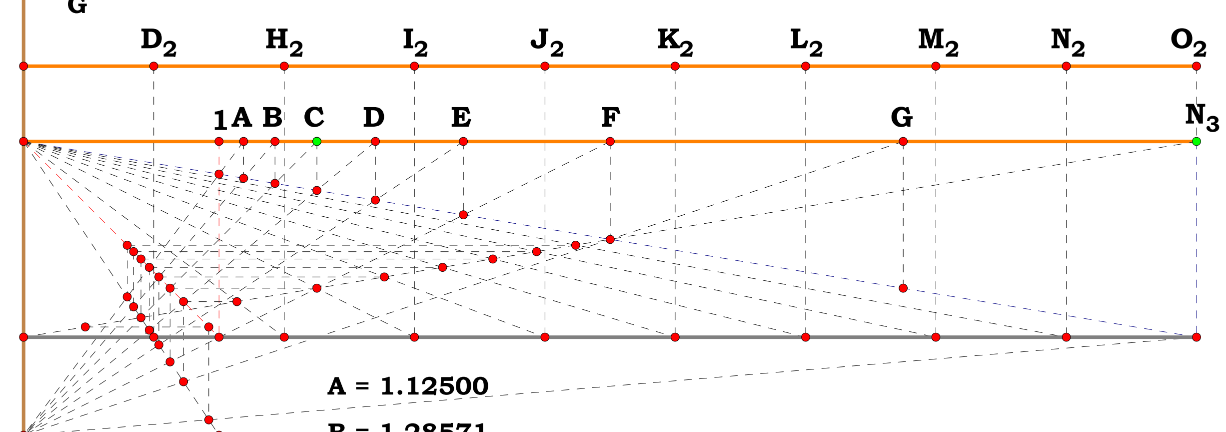
$N_2 = 5.33333$ $H_2 = 1.33333$

$M_2 = 4.66667$

$L_2 = 4.00000$

$K_2 = 3.33333$

$J_2 = 2.66667$ $D_2 = 0.66667$



A = 1.12500

B = 1.28571

C = 1.50000

D = 1.80000

E = 2.25000

F = 3.00000

G = 4.50000

Indexs: Index = 2 C_{indx} = 7.00

Number of div. by difference at an index.

$$\frac{(Index\cdot(1-N_3)+N_1\cdot N_2\cdot N_3)\cdot((N_3+Index\cdot(1-N_3)+N_1\cdot N_2\cdot N_3)-1)}{N_1\cdot N_2\cdot(N_3-1)} = 40.85000$$

len of frac. $\frac{N_1\cdot N_2\cdot N_3}{N_1\cdot N_2\cdot N_3-Index\cdot(N_3-1)} = 1.26316$

Total number of fractions.

$N_1\cdot N_2+1 = 9.00000$

Fraction at Index:

Num: $N_1\cdot N_2\cdot N_3-Index\cdot(N_3-1) = 38.00000$

Den: $N_1\cdot N_2 = 8.00000$

$$\frac{(N_1\cdot N_2\cdot N_3-Index\cdot(N_3-1))}{(N_1\cdot N_2)} = 4.75000$$

Fraction at Compliment:

$$\frac{N_1\cdot N_2\cdot N_3-C_{indx}\cdot(N_3-1)}{N_1\cdot N_2} = 1.62500$$

$$\frac{(N_3-C_{indx}\cdot N_3-Index\cdot N_3)+2\cdot N_1\cdot N_2\cdot N_3}{N_1\cdot N_2} = 6.00000$$

N[1] -> 0
N[1] -> 1
N[1] -> 2
N[1] -> 3
N[1] -> 4
N[1] -> 5
N[1] -> 6
N[1] -> 7
N[1] -> 8
N[1] -> 9
N[1] -> 10
N[1] -> 11

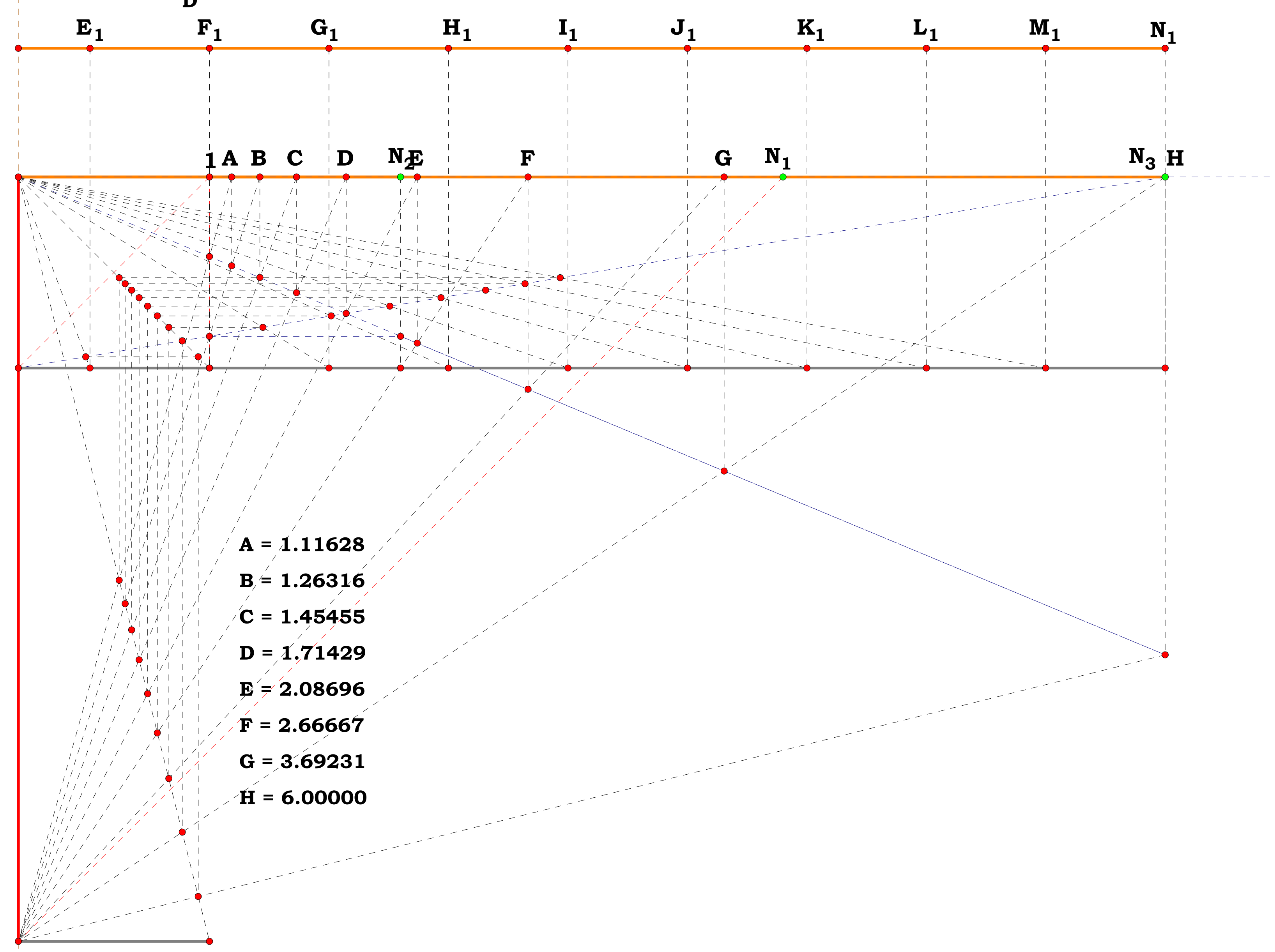
N[2] -> 0
N[2] -> 1
N[2] -> 2
N[2] -> 3
N[2] -> 4
N[2] -> 5
N[2] -> 6
N[2] -> 7
N[2] -> 8
N[2] -> 9
N[2] -> 10
N[2] -> 11

N_1 = 4.00000
N_2 = 2.00000
N_3 = 6.00000

N[3] -> 0
N[3] -> 1
N[3] -> 2
N[3] -> 3
N[3] -> 4
N[3] -> 5
N[3] -> 6
N[3] -> 7
N[3] -> 8
N[3] -> 9
N[3] -> 10
N[3] -> 11

$\frac{N_3}{1}$ = 6.00000
$\frac{N_3}{A}$ = 5.37500
$\frac{N_3}{B}$ = 4.75000
$\frac{N_3}{C}$ = 4.12500
$\frac{N_3}{D}$ = 3.50000
$\frac{N_3}{E}$ = 2.87500
$\frac{N_3}{F}$ = 2.25000
$\frac{N_3}{G}$ = 1.62500
$\frac{N_3}{H}$ = 1.00000

N_1 = 6.00000
M_1 = 5.37500
L_1 = 4.75000
K_1 = 4.12500
J_1 = 3.50000
I_1 = 2.87500
H_1 = 2.25000
G_1 = 1.62500
F_1 = 1.00000
E_1 = 0.37500

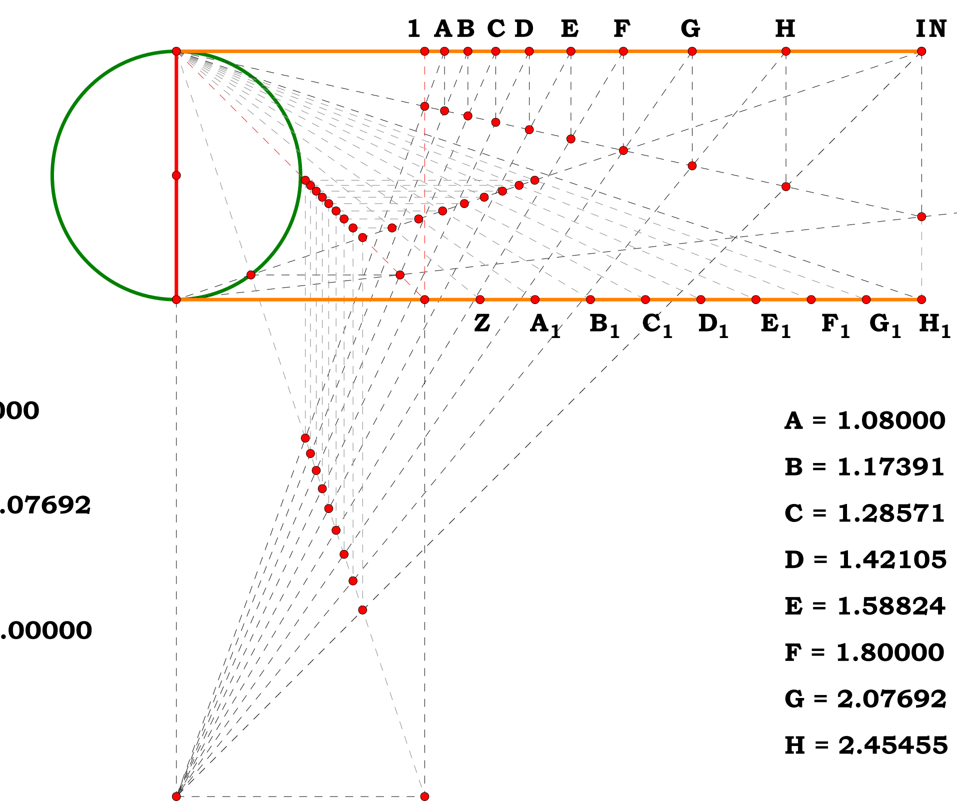


$x_{H_1} = 3.00000$

N -> 0
N -> 1
N -> 2
N -> 3
N -> 4
N -> 5
N -> 6
N -> 7
N -> 8
N -> 9
N -> 10
N -> 11

N = 3.00000

Show Objects



$In_{dx} = 7$

$$\frac{N^3}{(N^3-N)+1} = 1.08000$$

$$\frac{N^3}{N^3-In_{dx}\cdot(N-1)} = 2.07692$$

$N^3 = 27.00000$

$N^3-In_{dx}\cdot(N-1) = 13.00000$

$N^2 = 9.00000$

A = 1.08000
B = 1.17391
C = 1.28571
D = 1.42105
E = 1.58824
F = 1.80000
G = 2.07692
H = 2.45455

I = 3.00000

$H_1 = 2.77778$
$F_1 = 2.55556$
$E_1 = 2.33333$
$D_1 = 2.11111$
$C_1 = 1.88889$
$B_1 = 1.66667$
$A_1 = 1.44444$
$Z = 1.22222$

$\frac{N}{A} = 2.77778$

$\frac{N}{B} = 2.55556$

$\frac{N}{C} = 2.33333$

$\frac{N}{D} = 2.11111$

$\frac{N}{E} = 1.88889$

$\frac{N}{F} = 1.66667$

$\frac{N}{G} = 1.44444$

$\frac{N}{H} = 1.22222$

Fractional Geometric Series.
Plate 1.

Index is Base 0

Index: $I_{ndx} = 0$

Number of div. at an index. $N_b - \frac{I_{ndx}}{N_a} = 5.00000$

Number of div. by difference at an index.

$$\frac{(I_{ndx} - N_a \cdot N_b) \cdot ((I_{ndx} - N_a \cdot N_b) + 1)}{N_a} = 45.0000$$

Total number of fractions.

$N_a \cdot N_b - N_a = 8.00000$

$\frac{\text{numerator}}{\text{denominator}} = 2.00000$

numerator = 2.00000

denominator = 1.00000

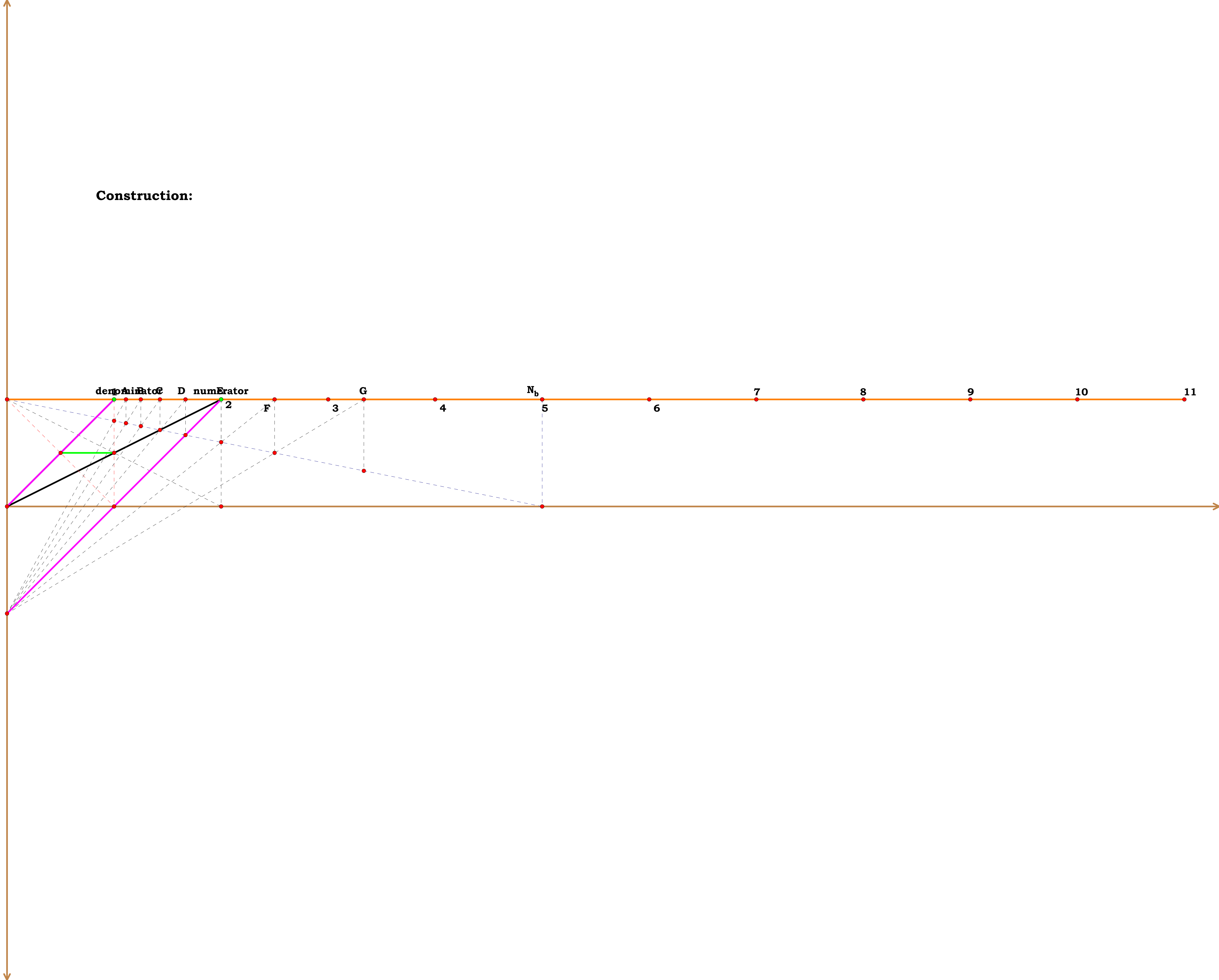
$N_a = 2.00000$

$N_b = 5.00000$

num	den	
N[1] -> 0	N[3] -> 0	N[2] -> 0
N[1] -> 1	N[3] -> 1	N[2] -> 1
N[1] -> 2	N[3] -> 2	N[2] -> 2
N[1] -> 3	N[3] -> 3	N[2] -> 3
N[1] -> 4	N[3] -> 4	N[2] -> 4
N[1] -> 5	N[3] -> 5	N[2] -> 5
N[1] -> 6	N[3] -> 6	N[2] -> 6
N[1] -> 7	N[3] -> 7	N[2] -> 7
N[1] -> 8	N[3] -> 8	N[2] -> 8
N[1] -> 9	N[3] -> 9	N[2] -> 9
N[1] -> 10	N[3] -> 10	N[2] -> 10
N[1] -> 11	N[3] -> 11	N[2] -> 11

Hide Intersection

Construction:



Index is Base 0

Index: $I_{ndx} = 1$

Number of div. at an index. $N_b - \frac{I_{ndx}}{N_a} = 10.54545$

Number of div. by difference at an index.

$$\frac{(I_{ndx}-N_a \cdot N_b)\cdot((I_{ndx}-N_a \cdot N_b)+1)}{N_a} = 234.1091$$

Total number of fractions.

$N_a \cdot N_b - N_a = 22.00000$

Present 2 Actions

$\frac{\text{numerator}}{\text{denominator}} = 2.20000$

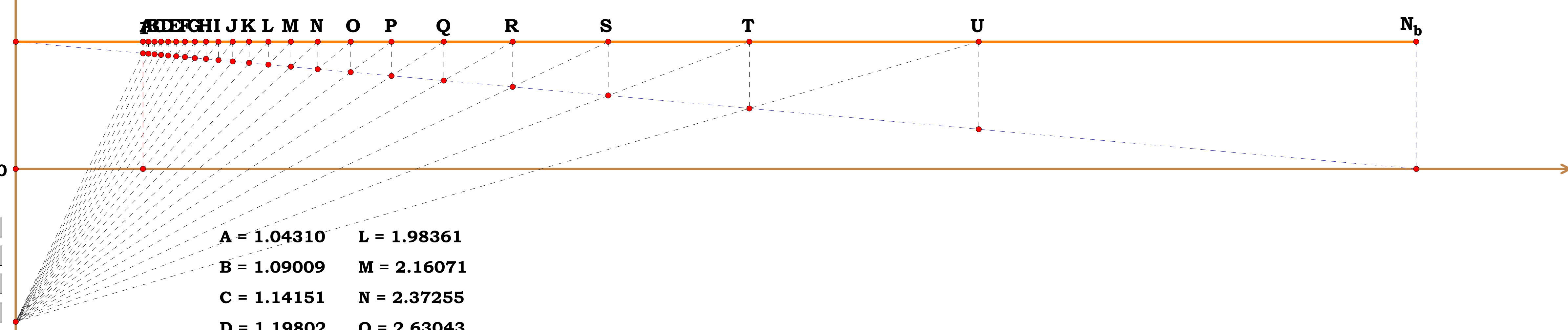
numerator = 11.00000

denominator = 5.00000

$N_a = 2.20000$

$N_b = 11.00000$

$\frac{N_b}{1} = 11.00000$	$\frac{N_b}{H} = 7.36364$	$\frac{N_b}{P} = 3.72727$	$\frac{116}{11} = 10.54545$
$\frac{N_b}{A} = 10.54545$	$\frac{N_b}{I} = 6.90909$	$\frac{N_b}{Q} = 3.27273$	$\frac{111}{11} = 10.09091$
$\frac{N_b}{B} = 10.09091$	$\frac{N_b}{J} = 6.45455$	$\frac{N_b}{R} = 2.81818$	$\frac{106}{11} = 9.63636$
$\frac{N_b}{C} = 9.63636$	$\frac{N_b}{K} = 6.00000$	$\frac{N_b}{S} = 2.36364$	$\frac{101}{11} = 9.18182$
$\frac{N_b}{D} = 9.18182$	$\frac{N_b}{L} = 5.54545$	$\frac{N_b}{T} = 1.90909$	
$\frac{N_b}{E} = 8.72727$	$\frac{N_b}{M} = 5.09091$	$\frac{N_b}{U} = 1.45455$	
$\frac{N_b}{F} = 8.27273$	$\frac{N_b}{N} = 4.63636$		
$\frac{N_b}{G} = 7.81818$	$\frac{N_b}{O} = 4.18182$		



num	den	
N[1] -> 0	N[3] -> 0	N[2] -> 0
N[1] -> 1	N[3] -> 1	N[2] -> 1
N[1] -> 2	N[3] -> 2	N[2] -> 2
N[1] -> 3	N[3] -> 3	N[2] -> 3
N[1] -> 4	N[3] -> 4	N[2] -> 4
N[1] -> 5	N[3] -> 5	N[2] -> 5
N[1] -> 6	N[3] -> 6	N[2] -> 6
N[1] -> 7	N[3] -> 7	N[2] -> 7
N[1] -> 8	N[3] -> 8	N[2] -> 8
N[1] -> 9	N[3] -> 9	N[2] -> 9
N[1] -> 10	N[3] -> 10	N[2] -> 10
N[1] -> 11	N[3] -> 11	N[2] -> 11

A = 1.04310	L = 1.98361
B = 1.09009	M = 2.16071
C = 1.14151	N = 2.37255
D = 1.19802	O = 2.63043
E = 1.26042	P = 2.95122
F = 1.32967	Q = 3.36111
G = 1.40698	R = 3.90323
H = 1.49383	S = 4.65385
I = 1.59211	T = 5.76190
J = 1.70423	U = 7.56250
K = 1.83333	

Show Intersection

Index is Base 0

$I_{ndx} = 0$

$N_b - \frac{I_{ndx}}{N_a} = 11.00000$

$\frac{(I_{ndx} - N_a \cdot N_b) \cdot ((I_{ndx} - N_a \cdot N_b) + 1)}{N_a} = 110.0000$

$N_a \cdot N_b - N_a = 10.00000$

Present 2 Actions

$\frac{N_b}{1} = 11.00000$ $\frac{N_b}{H} = 3.00000$

$\frac{N_b}{A} = 10.00000$ $\frac{N_b}{I} = 2.00000$

$\frac{N_b}{B} = 9.00000$

$\frac{N_b}{C} = 8.00000$

$\frac{N_b}{D} = 7.00000$

$\frac{N_b}{E} = 6.00000$

$\frac{N_b}{F} = 5.00000$

$\frac{N_b}{G} = 4.00000$

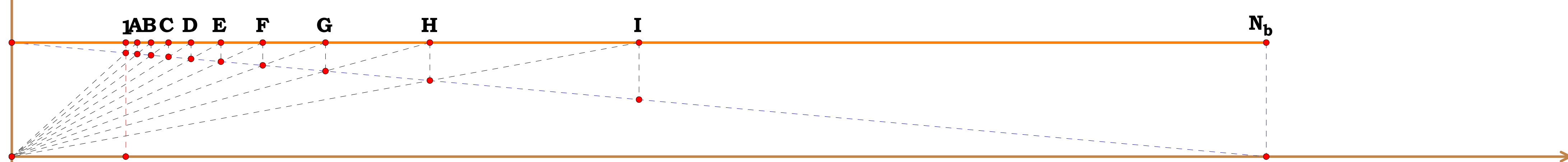
$\frac{\text{numerator}}{\text{denominator}} = 1.00000$

numerator = 1.00000

denominator = 1.00000

$N_a = 1.00000$

$N_b = 11.00000$



num **den**

num	den	
N[1] -> 0	N[3] -> 0	N[2] -> 0
N[1] -> 1	N[3] -> 1	N[2] -> 1
N[1] -> 2	N[3] -> 2	N[2] -> 2
N[1] -> 3	N[3] -> 3	N[2] -> 3
N[1] -> 4	N[3] -> 4	N[2] -> 4
N[1] -> 5	N[3] -> 5	N[2] -> 5
N[1] -> 6	N[3] -> 6	N[2] -> 6
N[1] -> 7	N[3] -> 7	N[2] -> 7
N[1] -> 8	N[3] -> 8	N[2] -> 8
N[1] -> 9	N[3] -> 9	N[2] -> 9
N[1] -> 10	N[3] -> 10	N[2] -> 10
N[1] -> 11	N[3] -> 11	N[2] -> 11

A = 1.10000

B = 1.22222

C = 1.37500

D = 1.57143

E = 1.83333

F = 2.20000

G = 2.75000

H = 3.66667

I = 5.50000

Show Intersection

Index is Base 0

$I_{ndx} = 0$

$N_b - \frac{I_{ndx}}{N_a} = 7.00000$

$\frac{(I_{ndx} - N_a \cdot N_b) \cdot ((I_{ndx} - N_a \cdot N_b) + 1)}{N_a} = 42.0000$

$N_a \cdot N_b - N_a = 6.00000$

$\frac{N_b}{1} = 7.00000$

$\frac{N_b}{A} = 6.00000$

$\frac{N_b}{B} = 5.00000$

$\frac{N_b}{C} = 4.00000$

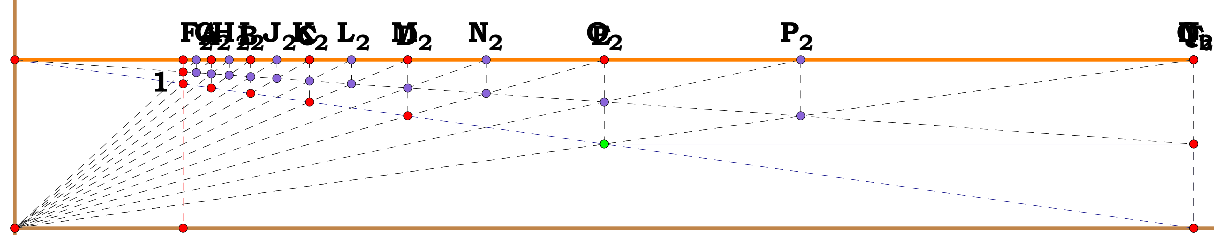
$\frac{N_b}{D} = 3.00000$

$\frac{N_b}{E} = 2.00000$

$\frac{N_b}{F} = 1.00000$

Present 2 Actions

Present 2 Actions



$\frac{numerator}{denominator} = 1.00000$

numerator = 1.00000

denominator = 1.00000

$N_a = 1.00000$

$N_b = 7.00000$

num	den		
N[1] -> 0	N[3] -> 0		N[2] -> 0
N[1] -> 1	N[3] -> 1		N[2] -> 1
N[1] -> 2	N[3] -> 2	Home Point	N[2] -> 2
N[1] -> 3	N[3] -> 3	A Point	N[2] -> 3
N[1] -> 4	N[3] -> 4	B Point	N[2] -> 4
N[1] -> 5	N[3] -> 5	C Point	N[2] -> 5
N[1] -> 6	N[3] -> 6	D Point	N[2] -> 6
N[1] -> 7	N[3] -> 7	E Point	N[2] -> 7
N[1] -> 8	N[3] -> 8	F Point	N[2] -> 8
N[1] -> 9	N[3] -> 9		N[2] -> 9
N[1] -> 10	N[3] -> 10		N[2] -> 10
N[1] -> 11	N[3] -> 11		N[2] -> 11

$\frac{N_b}{F_2} = 6.50000$ $\frac{N_b}{J_2} = 4.50000$ $\frac{N_b}{N_2} = 2.50000$

$\frac{N_b}{G_2} = 6.00000$ $\frac{N_b}{K_2} = 4.00000$ $\frac{N_b}{O_2} = 2.00000$

$\frac{N_b}{H_2} = 5.50000$ $\frac{N_b}{L_2} = 3.50000$ $\frac{N_b}{P_2} = 1.50000$

$\frac{N_b}{I_2} = 5.00000$ $\frac{N_b}{M_2} = 3.00000$ $\frac{N_b}{Q_2} = 1.00000$

$F_2 = 1.07692$

$G_2 = 1.16667$

$H_2 = 1.27273$

$I_2 = 1.40000$

$J_2 = 1.55556$

$K_2 = 1.75000$

$L_2 = 2.00000$

$M_2 = 2.33333$

$N_2 = 2.80000$

$O_2 = 3.50000$

$P_2 = 4.66667$

$Q_2 = 7.00000$

Recursive division using the first series points on the operational tail.

Show Intersection

Index is Base 0

$I_{ndx} = 0$

$N_b - \frac{I_{ndx}}{N_a} = 7.00000$

$\frac{(I_{ndx}-N_a \cdot N_b)\cdot((I_{ndx}-N_a \cdot N_b)+1)}{N_a} = 42.0000$

$N_a \cdot N_b - N_a = 6.00000$

$\frac{N_b}{1} = 7.00000$

$\frac{N_b}{A} = 6.00000$

$\frac{N_b}{B} = 5.00000$

$\frac{N_b}{C} = 4.00000$

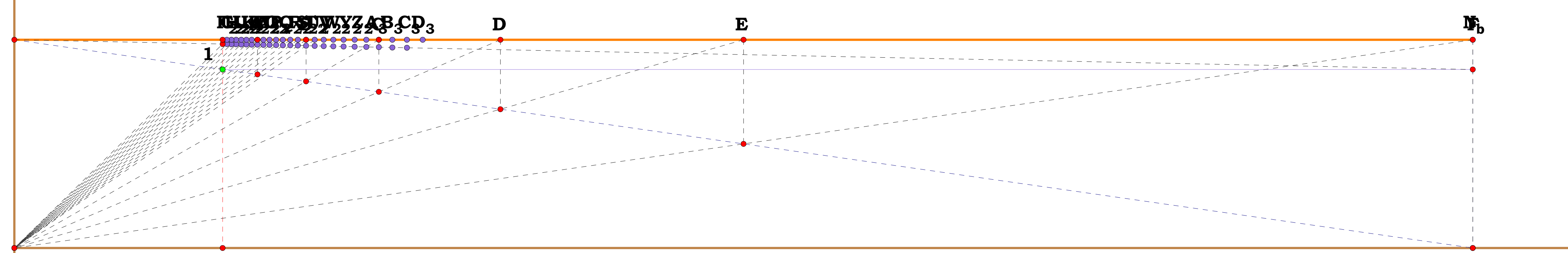
$\frac{N_b}{D} = 3.00000$

$\frac{N_b}{E} = 2.00000$

$\frac{N_b}{F} = 1.00000$

Present 2 Actions

Present 2 Actions



$\frac{numerator}{denominator} = 1.00000$

numerator = 1.00000

denominator = 1.00000

$N_a = 1.00000$

$N_b = 7.00000$

num	den		
N[1] -> 0	N[3] -> 0		N[2] -> 0
N[1] -> 1	N[3] -> 1		N[2] -> 1
N[1] -> 2	N[3] -> 2		N[2] -> 2
N[1] -> 3	N[3] -> 3	Home Point	N[2] -> 3
N[1] -> 4	N[3] -> 4	A Point	N[2] -> 4
N[1] -> 5	N[3] -> 5	B Point	N[2] -> 5
N[1] -> 6	N[3] -> 6	C Point	N[2] -> 6
N[1] -> 7	N[3] -> 7	D Point	N[2] -> 7
N[1] -> 8	N[3] -> 8	E Point	N[2] -> 8
N[1] -> 9	N[3] -> 9	F Point	N[2] -> 9
N[1] -> 10	N[3] -> 10		N[2] -> 10
N[1] -> 11	N[3] -> 11		N[2] -> 11

$\frac{N_b}{F_2} = 6.85714$ $\frac{N_b}{G_2} = 6.71429$ $\frac{N_b}{H_2} = 6.57143$ $\frac{N_b}{I_2} = 6.42857$

$\frac{N_b}{J_2} = 6.28571$ $\frac{N_b}{K_2} = 6.14286$ $\frac{N_b}{L_2} = 6.00000$ $\frac{N_b}{M_2} = 5.85714$

$\frac{N_b}{N_2} = 5.71429$ $\frac{N_b}{O_2} = 5.57143$ $\frac{N_b}{P_2} = 5.42857$ $\frac{N_b}{Q_2} = 5.28571$

$\frac{N_b}{R_2} = 5.14286$ $\frac{N_b}{S_2} = 5.00000$ $\frac{N_b}{T_2} = 4.85714$ $\frac{N_b}{U_2} = 4.71429$

$\frac{N_b}{V_2} = 4.57143$ $\frac{N_b}{W_2} = 4.42857$ $\frac{N_b}{Y_2} = 4.28571$ $\frac{N_b}{Z_2} = 4.14286$

$\frac{N_b}{A_3} = 4.00000$ $\frac{N_b}{B_3} = 3.85714$ $\frac{N_b}{C_3} = 3.71429$ $\frac{N_b}{D_3} = 3.57143$

$F_2 = 1.02083$
$G_2 = 1.04255$
$H_2 = 1.06522$
$I_2 = 1.08889$
$J_2 = 1.11364$
$K_2 = 1.13953$
$L_2 = 1.16667$
$M_2 = 1.19512$
$N_2 = 1.22500$

$O_2 = 1.25641$
$P_2 = 1.28947$
$Q_2 = 1.32432$
$R_2 = 1.36111$
$S_2 = 1.40000$
$T_2 = 1.44118$
$U_2 = 1.48485$
$V_2 = 1.53125$
$W_2 = 1.58065$

$Y_2 = 1.63333$
$Z_2 = 1.68966$
$A_3 = 1.75000$
$B_3 = 1.81481$
$C_3 = 1.88462$
$D_3 = 1.96000$

Recursive division using the first series points on the operational tail.

Show Intersection

Fractional Geometric Series.
Plate 2.

Construction:

Index = 1

Frac. mult. $\dfrac{(1-N_2)\cdot Index+N_1\cdot N_2\cdot N_3}{N_1\cdot N_3} = 6.74335$

# of fracs. $N_1\cdot N_3 = 8.00000$

len of frac. $\dfrac{N_1\cdot N_2\cdot N_3}{N_1\cdot N_2\cdot N_3-Index\cdot(N_2-1)} = 1.12167$

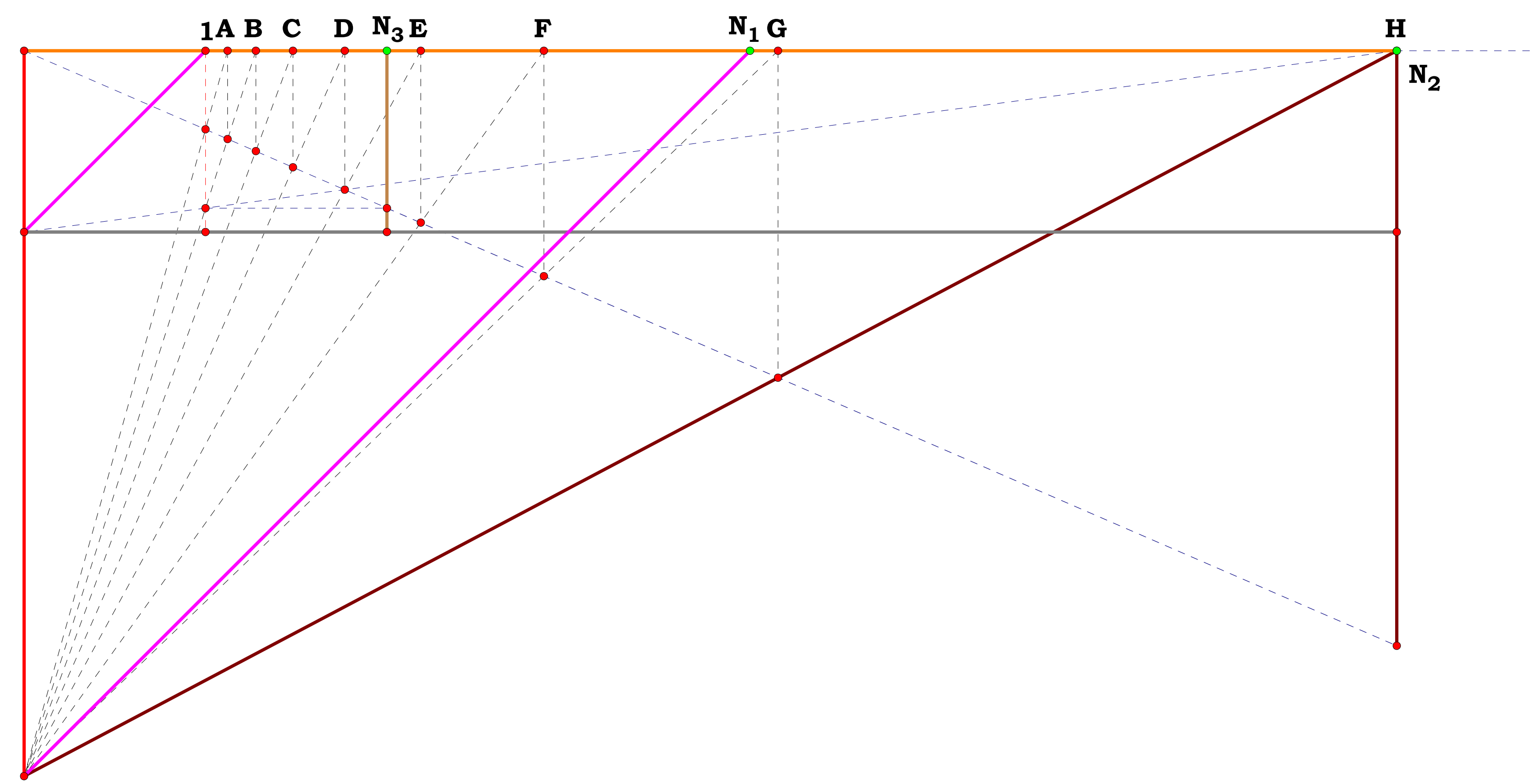
num of div. for frac. $\dfrac{(Index\cdot(1-N_2)+N_1\cdot N_2\cdot N_3)\cdot((N_2+Index\cdot(1-N_2)+N_1\cdot N_2\cdot N_3)-1)}{N_1\cdot N_3\cdot(N_2-1)} = 62.16558$

$N_1 = 4.00000$

$N_3 = 2.00000$

$N_2 = 7.56383$

N[1] -> 0	N[3] -> 0	N[2] -> 0
N[1] -> 1	N[3] -> 1	N[2] -> 1
N[1] -> 2	N[3] -> 2	N[2] -> 2
N[1] -> 3	N[3] -> 3	N[2] -> 3
N[1] -> 4	N[3] -> 4	N[2] -> 4
N[1] -> 5	N[3] -> 5	N[2] -> 5
N[1] -> 6	N[3] -> 6	N[2] -> 6
N[1] -> 7	N[3] -> 7	N[2] -> 7
N[1] -> 8	N[3] -> 8	N[2] -> 8
N[1] -> 9	N[3] -> 9	N[2] -> 9
N[1] -> 10	N[3] -> 10	N[2] -> 10
N[1] -> 11	N[3] -> 11	N[2] -> 11



$\frac{N_2}{1} = 6.76866$ $\frac{N_2}{E} = 4.84577$ $\frac{N_2}{J} = 2.92289$ $\frac{N_2}{O} = 1.00000$

$\frac{N_2}{A} = 6.38408$ $\frac{N_2}{F} = 4.46119$ $\frac{N_2}{K} = 2.53831$

$\frac{N_2}{B} = 5.99950$ $\frac{N_2}{G} = 4.07662$ $\frac{N_2}{L} = 2.15373$

$\frac{N_2}{C} = 5.61492$ $\frac{N_2}{H} = 3.69204$ $\frac{N_2}{M} = 1.76915$

$\frac{N_2}{D} = 5.23035$ $\frac{N_2}{I} = 3.30746$ $\frac{N_2}{N} = 1.38458$

Index = 1

Frac. mult. $\frac{(1-N_2)\cdot Index+N_1\cdot N_2\cdot N_3}{N_1\cdot N_3} = 6.38408$

# of fracs. $N_1\cdot N_3 = 15.00000$

len of frac. $\frac{N_1\cdot N_2\cdot N_3}{N_1\cdot N_2\cdot N_3-Index\cdot(N_2-1)} = 1.06024$

$\frac{N_2}{A-1} = 112.36144$

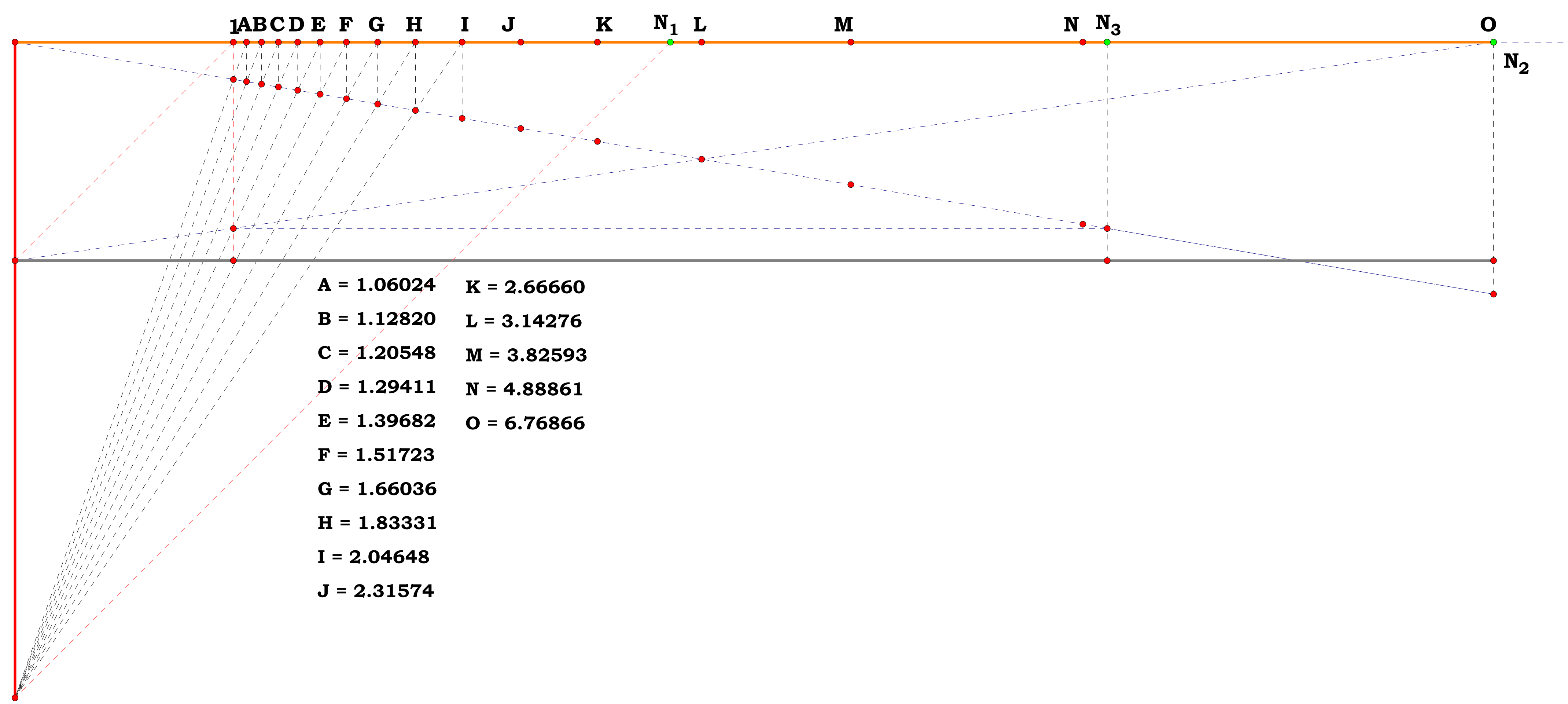
num of div. for frac. $\frac{(Index\cdot(1-N_2)+N_1\cdot N_2\cdot N_3)\cdot((N_2+Index\cdot(1-N_2)+N_1\cdot N_2\cdot N_3)-1)}{N_1\cdot N_3\cdot(N_2-1)} = 112.36144$

$N_1 = 3.00000$

$N_3 = 5.00000$

$N_2 = 6.76866$

N[1] -> 0	N[3] -> 0	N[2] -> 0
N[1] -> 1	N[3] -> 1	N[2] -> 1
N[1] -> 2	N[3] -> 2	N[2] -> 2
N[1] -> 3	N[3] -> 3	N[2] -> 3
N[1] -> 4	N[3] -> 4	N[2] -> 4
N[1] -> 5	N[3] -> 5	N[2] -> 5
N[1] -> 6	N[3] -> 6	N[2] -> 6
N[1] -> 7	N[3] -> 7	N[2] -> 7
N[1] -> 8	N[3] -> 8	N[2] -> 8
N[1] -> 9	N[3] -> 9	N[2] -> 9
N[1] -> 10	N[3] -> 10	N[2] -> 10
N[1] -> 11	N[3] -> 11	N[2] -> 11



A = 1.06024
B = 1.12820
C = 1.20548
D = 1.29411
E = 1.39682
F = 1.51723
G = 1.66036
H = 1.83331
I = 2.04648
J = 2.31574
K = 2.66660
L = 3.14276
M = 3.82593
N = 4.88861
O = 6.76866

Fractional Geometric Series.
Plate 3.

Hide Objects

Hide Objects

Show Intersections

Show Intersections

$$\frac{(i_{dx}\cdot(N_2\text{-}N_0\cdot N_2)+N_0\cdot N_1\cdot N_3)\cdot(((N_2\text{-}i_{dx}\cdot N_2\text{-}N_0\cdot N_2)+i_{dx}\cdot N_0\cdot N_2)\text{-}N_0\cdot N_1\cdot N_3)}{N_1\cdot N_3\cdot(((N_2+i_{dx}\cdot(N_2\text{-}N_0\cdot N_2))\text{-}i_{dx}\cdot N_2\text{-}N_0\cdot N_2)+i_{dx}\cdot N_0\cdot N_2)} = 45.55556$$

$$\frac{N_0\cdot N_1\cdot N_3}{i_{dx}\cdot(N_2\text{-}N_2\cdot N_0)+N_0\cdot N_1\cdot N_3} = 1.21951$$

$i_{dx} = 1$

$$\frac{i_{dx}\cdot(N_2\text{-}N_0\cdot N_2)+N_0\cdot N_1\cdot N_3}{N_1\cdot N_3} = 8.20000$$

$$\frac{N_1\cdot N_3\text{-}i_{dx}\cdot N_2\cdot(1\text{-}N_0)}{N_1\cdot N_3} = 2.80000$$

$N_0 = 10.00000$

$N_1 = 5.00000$

$N_2 = 1.00000$

$N_3 = 1.00000$

$$\frac{N_0}{1} = 10.00000$$

$$\frac{N_1}{N_2} = 5.00000$$

$$\frac{N_1}{N_2}\cdot N_3 = 5.00000$$

N[1] -> 0	N[2] -> 0	N[3] -> 0	N [0] -> 0
N[1] -> 1	N[2] -> 1	N[3] -> 1	N [0] -> 1
N[1] -> 2	N[2] -> 2	N[3] -> 2	N [0] -> 2
N[1] -> 3	N[2] -> 3	N[3] -> 3	N [0] -> 3
N[1] -> 4	N[2] -> 4	N[3] -> 4	N [0] -> 4
N[1] -> 5	N[2] -> 5	N[3] -> 5	N [0] -> 5
N[1] -> 6	N[2] -> 6	N[3] -> 6	N [0] -> 6
N[1] -> 7	N[2] -> 7	N[3] -> 7	N [0] -> 7
N[1] -> 8	N[2] -> 8	N[3] -> 8	N [0] -> 8
N[1] -> 9	N[2] -> 9	N[3] -> 9	N [0] -> 9
N[1] -> 10	N[2] -> 10	N[3] -> 10	N [0]-> 10
N[1] -> 11	N[2] -> 11	N[3] -> 11	N [0] -> 11

A = 1.21951

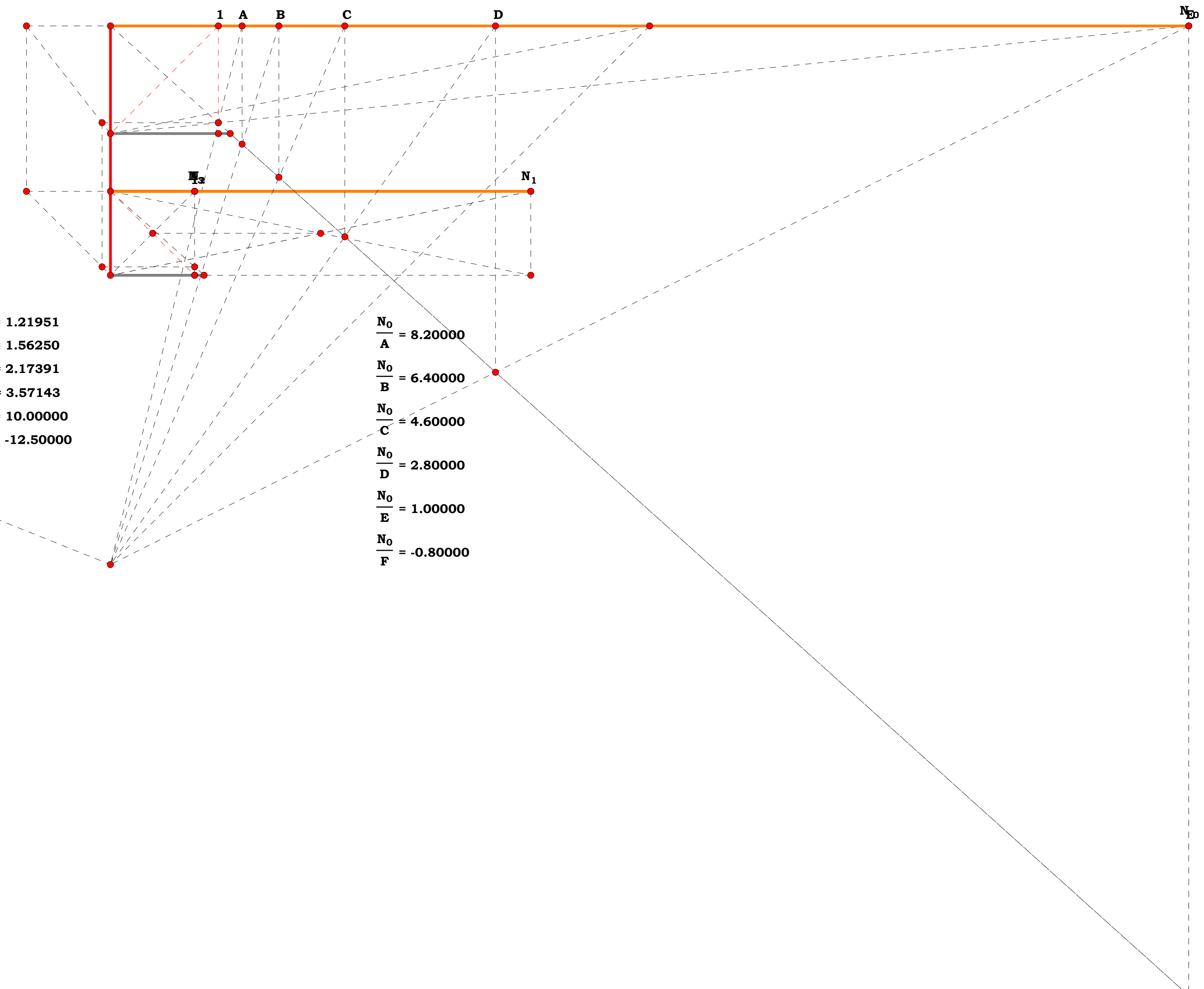
B = 1.56250

C = 2.17391

D = 3.57143

E = 10.00000

F = -12.50000



$$\frac{N_0}{A} = 8.20000$$

$$\frac{N_0}{B} = 6.40000$$

$$\frac{N_0}{C} = 4.60000$$

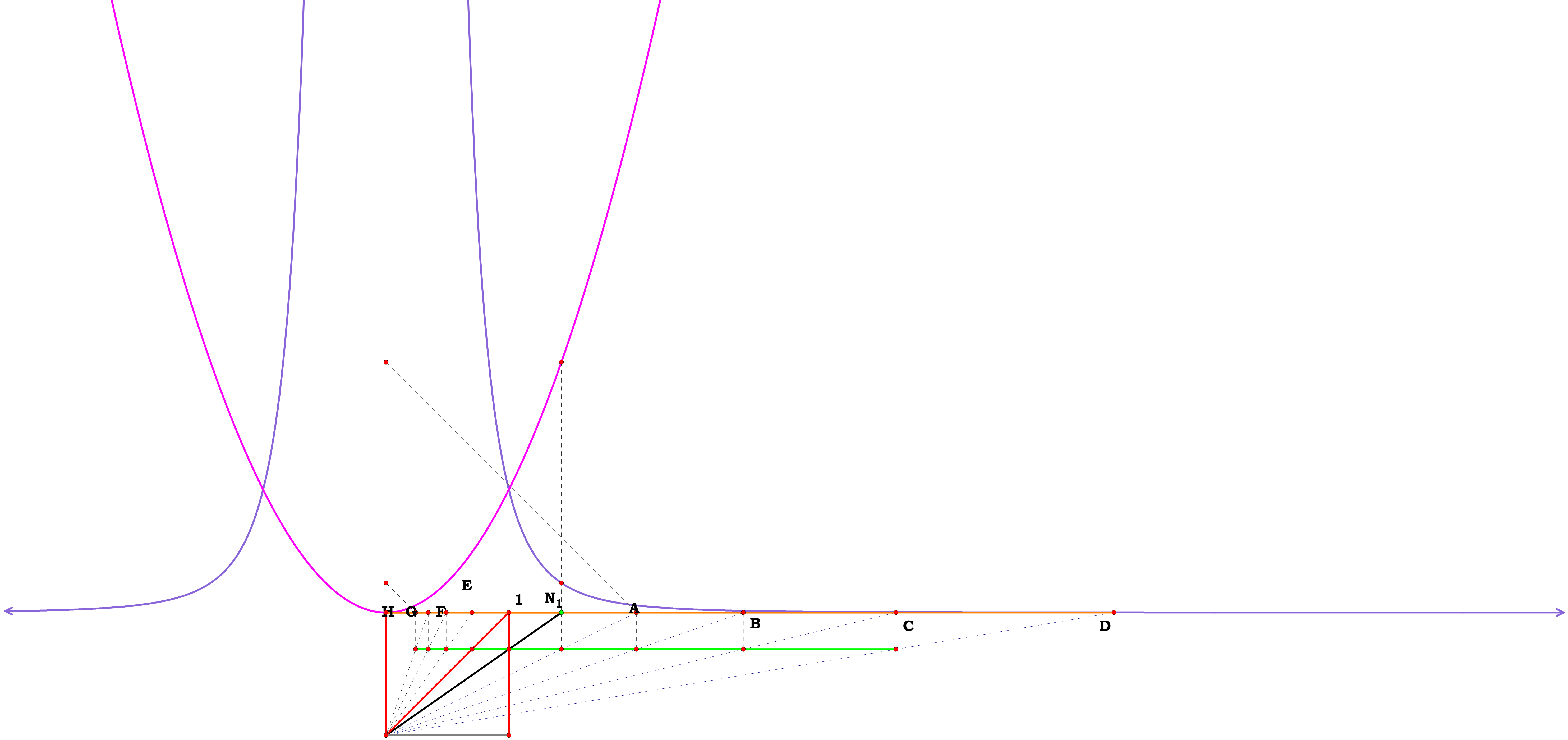
$$\frac{N_0}{D} = 2.80000$$

$$\frac{N_0}{E} = 1.00000$$

$$\frac{N_0}{F} = -0.80000$$

Exponential Series Notebook 1

Zero from bottom.



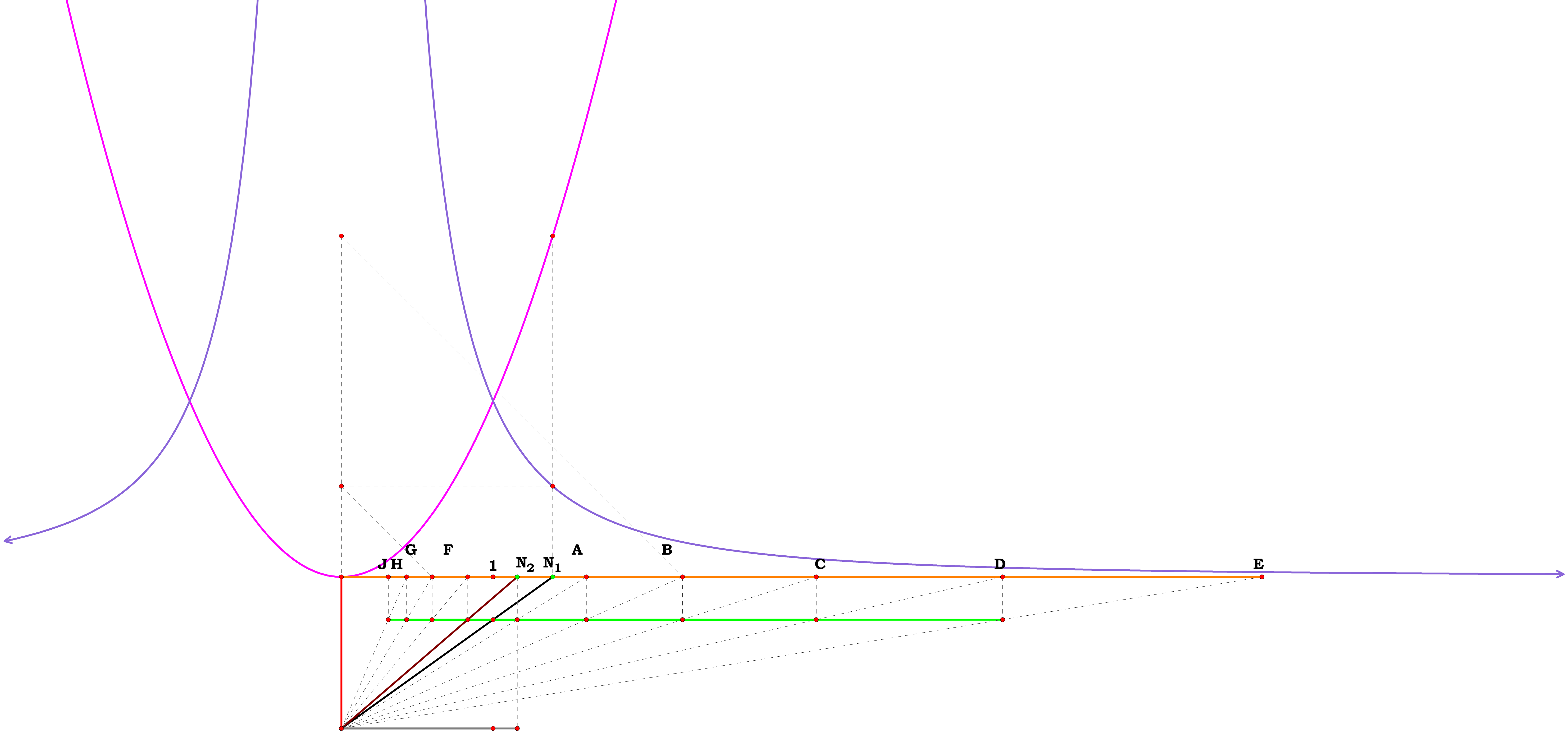
$N_1 = 1.42736$

A = 2.03735
B = 2.90803
C = 4.15079
D = 5.92467
E = 0.70060
F = 0.49083
G = 0.34388
H = 0.24092

$N_1^2 - A = 0.00000$
$N_1^3 - B = 0.00000$
$N_1^4 - C = 0.00000$
$N_1^5 - D = 0.00000$

$N_1^{-1} - E = 0.00000$
$N_1^{-2} - F = 0.00000$
$N_1^{-3} - G = 0.00000$
$N_1^{-4} - H = 0.00000$

Plate 1



$N_1 = 1.39234$

$N_2 = 1.15968$

A = 1.61466
B = 2.24815
C = 3.13018
D = 4.35827
E = 6.06818
F = 0.83290
G = 0.59820
H = 0.42964
J = 0.30857

$N_2 \cdot N_1^{1} - A = 0.00000$

$N_2 \cdot N_1^{2} - B = 0.00000$

$N_2 \cdot N_1^{3} - C = 0.00000$

$N_2 \cdot N_1^{4} - D = 0.00000$

$N_2 \cdot N_1^{5} - E = 0.00000$

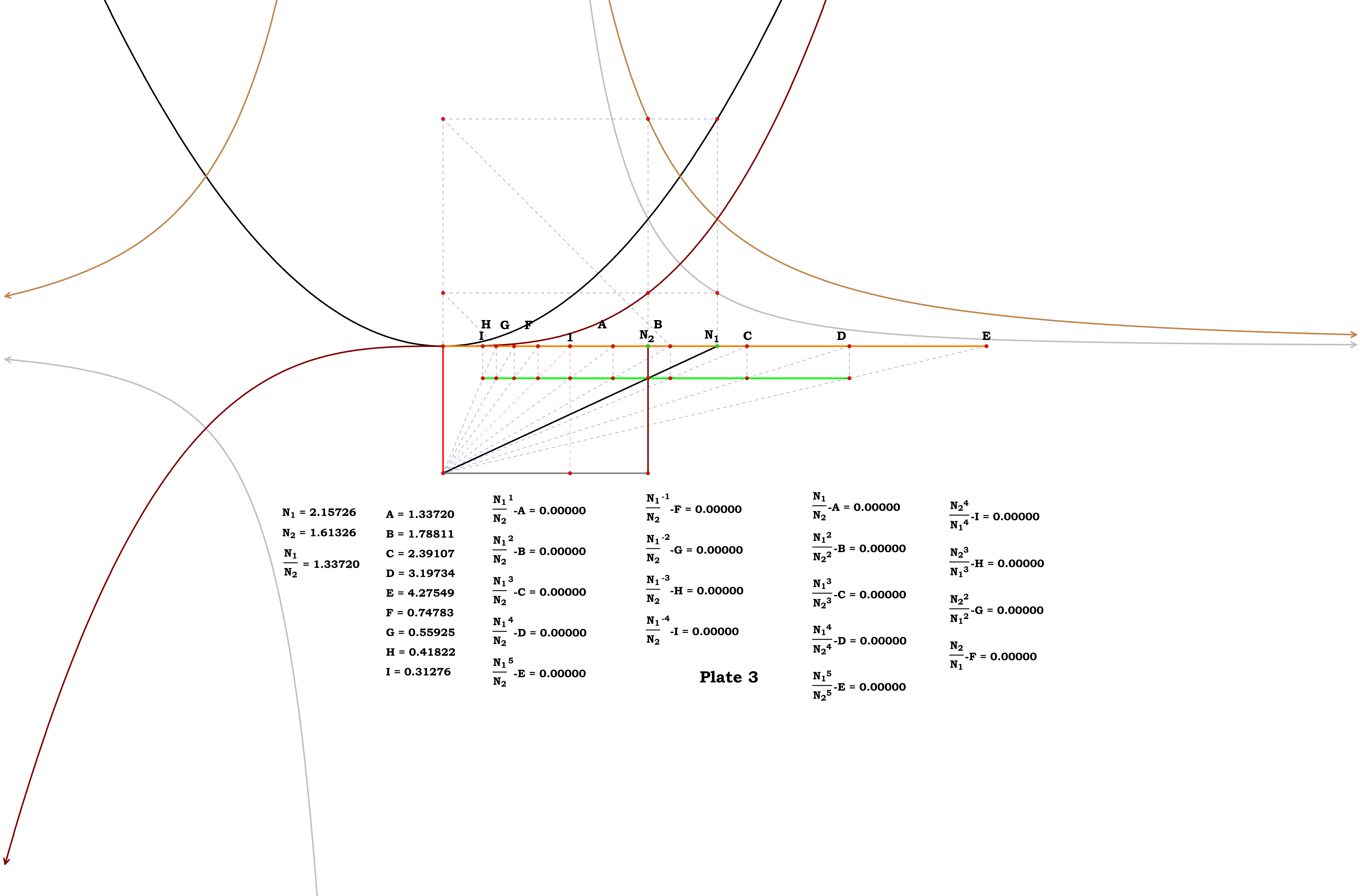
$N_2 \cdot N_1^{-1} - F = 0.00000$

$N_2 \cdot N_1^{-2} - G = 0.00000$

$N_2 \cdot N_1^{-3} - H = 0.00000$

$N_2 \cdot N_1^{-4} - J = 0.00000$

Plate 2



$N_1 = 2.15726$

$N_2 = 1.61326$

$\frac{N_1}{N_2} = 1.33720$

A = 1.33720
B = 1.78811
C = 2.39107
D = 3.19734
E = 4.27549
F = 0.74783
G = 0.55925
H = 0.41822
I = 0.31276

$\frac{N_1{}^{1}}{N_2} - A = 0.00000$

$\frac{N_1{}^{2}}{N_2} - B = 0.00000$

$\frac{N_1{}^{3}}{N_2} - C = 0.00000$

$\frac{N_1{}^{4}}{N_2} - D = 0.00000$

$\frac{N_1{}^{5}}{N_2} - E = 0.00000$

$\frac{N_1{}^{-1}}{N_2} - F = 0.00000$

$\frac{N_1{}^{-2}}{N_2} - G = 0.00000$

$\frac{N_1{}^{-3}}{N_2} - H = 0.00000$

$\frac{N_1{}^{-4}}{N_2} - I = 0.00000$

$\frac{N_1}{N_2} - A = 0.00000$

$\frac{N_1{}^2}{N_2{}^2} - B = 0.00000$

$\frac{N_1{}^3}{N_2{}^3} - C = 0.00000$

$\frac{N_1{}^4}{N_2{}^4} - D = 0.00000$

$\frac{N_1{}^5}{N_2{}^5} - E = 0.00000$

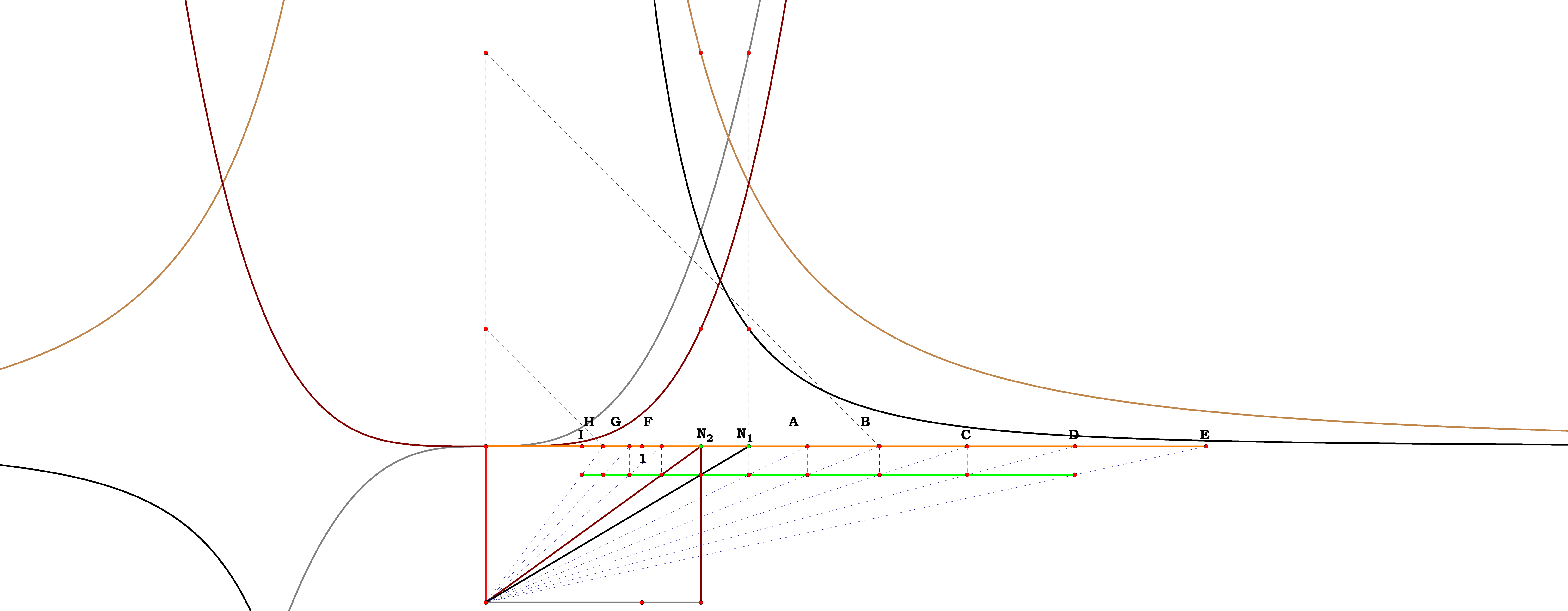
$\frac{N_2{}^4}{N_1{}^4} - I = 0.00000$

$\frac{N_2{}^3}{N_1{}^3} - H = 0.00000$

$\frac{N_2{}^2}{N_1{}^2} - G = 0.00000$

$\frac{N_2}{N_1} - F = 0.00000$

Plate 3



$N_1 = 1.68394$

$N_2 = 1.37660$

$\frac{N_1}{N_2} = 1.22326$

A = 2.05989
B = 2.51977
C = 3.08233
D = 3.77048
E = 4.61226
F = 1.12536
G = 0.91997
H = 0.75207
I = 0.61481

$N_1 \cdot \frac{N_1}{N_2}^{1} - A = 0.00000$

$N_1 \cdot \frac{N_1}{N_2}^{2} - B = 0.00000$

$N_1 \cdot \frac{N_1}{N_2}^{3} - C = 0.00000$

$N_1 \cdot \frac{N_1}{N_2}^{4} - D = 0.00000$

$N_1 \cdot \frac{N_1}{N_2}^{5} - E = 0.00000$

$N_1 \cdot \frac{N_1}{N_2}^{-1} - N_2 = 0.00000$

$N_1 \cdot \frac{N_1}{N_2}^{-2} - F = 0.00000$

$N_1 \cdot \frac{N_1}{N_2}^{-3} - G = 0.00000$

$N_1 \cdot \frac{N_1}{N_2}^{-4} - H = 0.00000$

$N_1 \cdot \frac{N_1}{N_2}^{-5} - I = 0.00000$

$\frac{N_1^2}{N_2} - A = 0.00000$

$\frac{N_1^3}{N_2^2} - B = 0.00000$

$\frac{N_1^4}{N_2^3} - C = 0.00000$

$\frac{N_1^5}{N_2^4} - D = 0.00000$

$\frac{N_1^6}{N_2^5} - E = 0.00000$

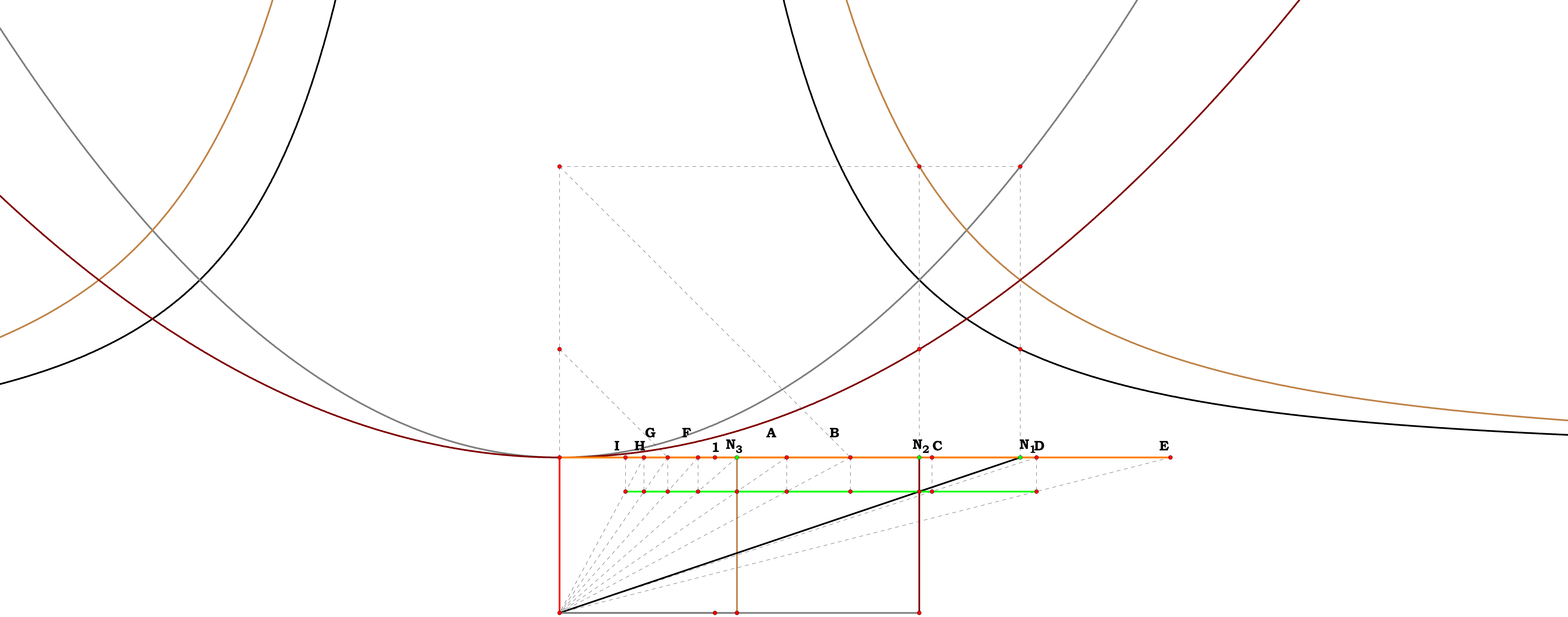
$\frac{N_2^5}{N_1^4} - I = 0.00000$

$\frac{N_2^4}{N_1^3} - H = 0.00000$

$\frac{N_2^3}{N_1^2} - G = 0.00000$

$\frac{N_2^2}{N_1} - F = 0.00000$

Plate 4



$N_1 = 2.96382$

$N_2 = 2.31441$

$N_3 = 1.14115$

$\frac{N_1}{N_2} = 1.28059$

A = 1.46135
B = 1.87140
C = 2.39649
D = 3.06893
E = 3.93005
F = 0.89111
G = 0.69586
H = 0.54339
I = 0.42433

$N_3 \cdot \frac{N_1}{N_2}^{1} - A = 0.00000$

$N_3 \cdot \frac{N_1}{N_2}^{2} - B = 0.00000$

$N_3 \cdot \frac{N_1}{N_2}^{3} - C = 0.00000$

$N_3 \cdot \frac{N_1}{N_2}^{4} - D = 0.00000$

$N_3 \cdot \frac{N_1}{N_2}^{5} - E = 0.00000$

$N_3 \cdot \frac{N_1}{N_2}^{-1} - F = 0.00000$

$N_3 \cdot \frac{N_1}{N_2}^{-2} - G = 0.00000$

$N_3 \cdot \frac{N_1}{N_2}^{-3} - H = 0.00000$

$N_3 \cdot \frac{N_1}{N_2}^{-4} - I = 0.00000$

Plate 5

$\frac{N_1 \cdot N_3}{N_2} - A = 0.00000$

$\frac{N_1^2 \cdot N_3}{N_2^2} - B = 0.00000$

$\frac{N_1^3 \cdot N_3}{N_2^3} - C = 0.00000$

$\frac{N_1^4 \cdot N_3}{N_2^4} - D = 0.00000$

$\frac{N_1^5 \cdot N_3}{N_2^5} - E = 0.00000$

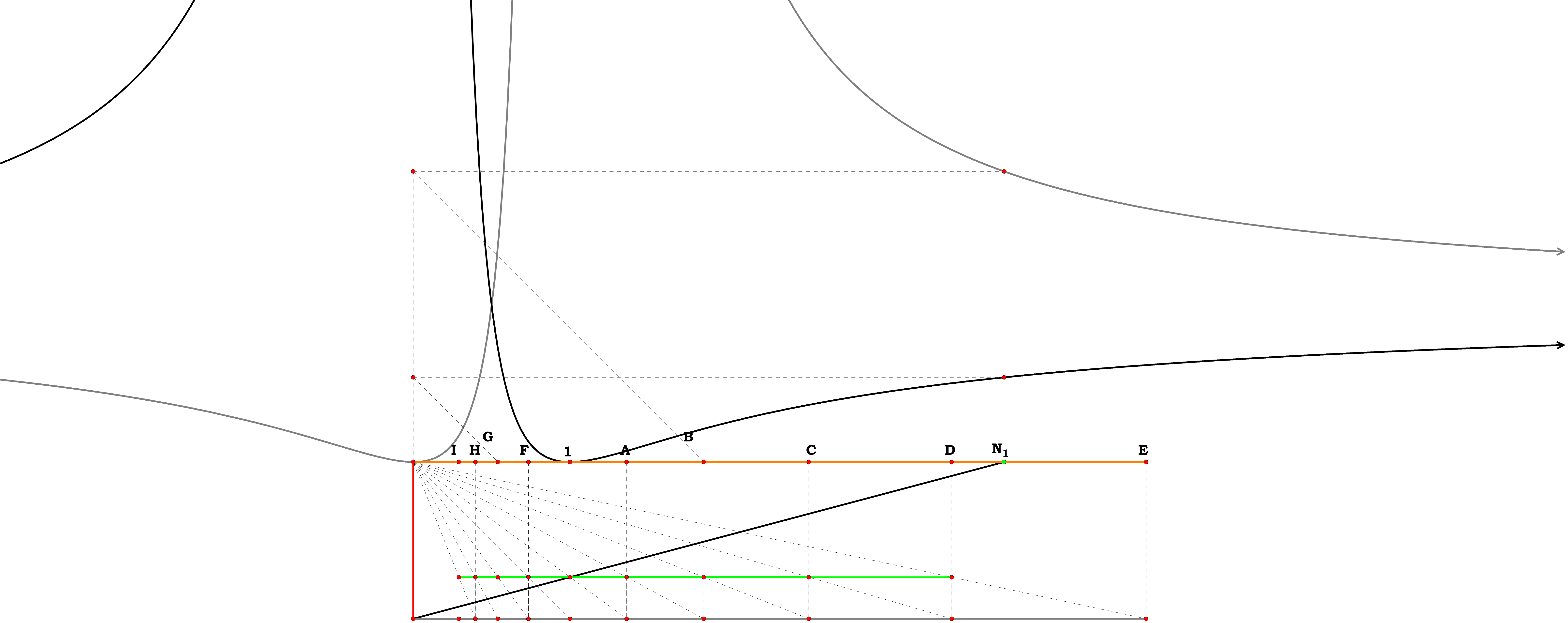
$\frac{N_2^4 \cdot N_3}{N_1^4} - I = 0.00000$

$\frac{N_2^3 \cdot N_3}{N_1^3} - H = 0.00000$

$\frac{N_2^2 \cdot N_3}{N_1^2} - G = 0.00000$

$\frac{N_2 \cdot N_3}{N_1} - F = 0.00000$

Zero from top.



$N_1 = 3.76827$

$\frac{N_1}{N_1-1} = 1.36124$

A = 1.36124
B = 1.85297
C = 2.52232
D = 3.43348
E = 4.67378
F = 0.73463
G = 0.53968
H = 0.39646
I = 0.29125

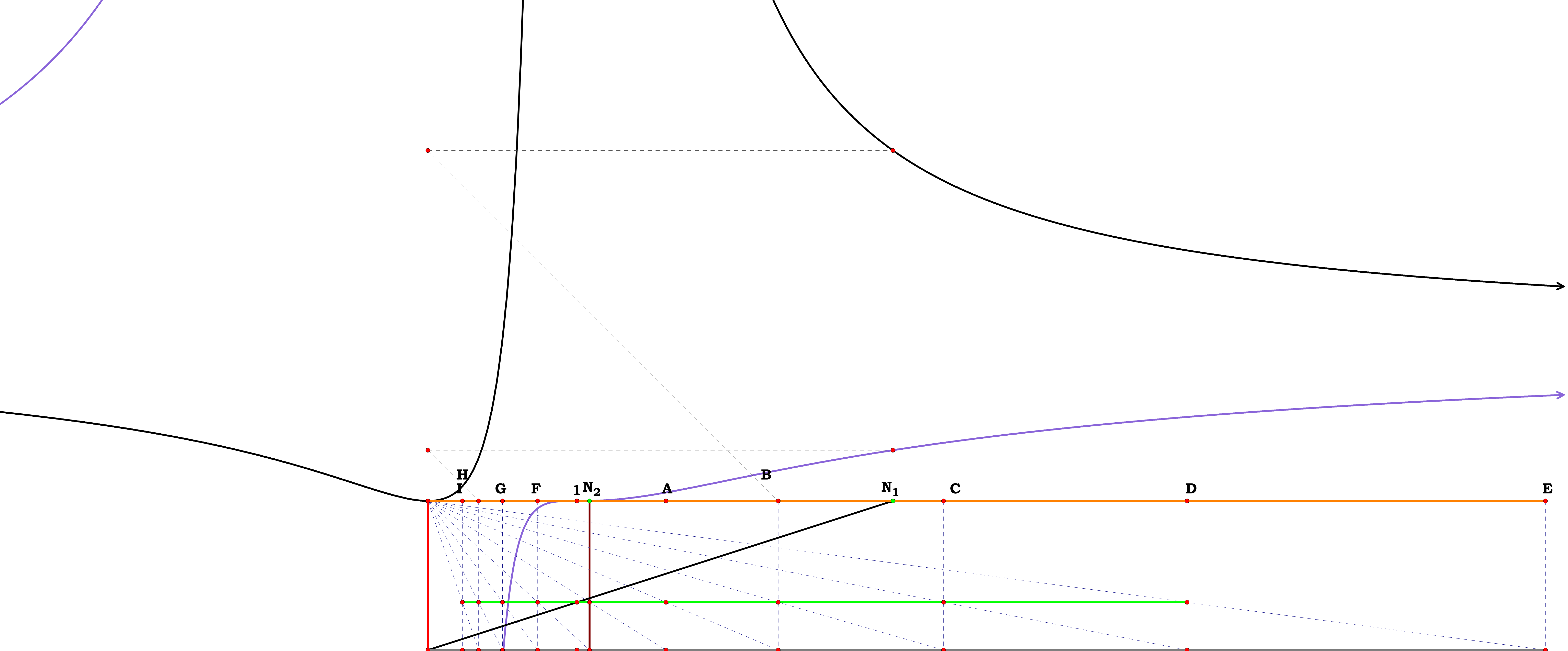
$$\frac{N_1}{N_1-1}^{1} - A = 0.00000$$
$$\frac{N_1}{N_1-1}^{2} - B = 0.00000$$
$$\frac{N_1}{N_1-1}^{3} - C = 0.00000$$
$$\frac{N_1}{N_1-1}^{4} - D = 0.00000$$
$$\frac{N_1}{N_1-1}^{5} - E = 0.00000$$

$$\frac{N_1}{N_1-1}^{-1} - F = 0.00000$$
$$\frac{N_1}{N_1-1}^{-2} - G = 0.00000$$
$$\frac{N_1}{N_1-1}^{-3} - H = 0.00000$$
$$\frac{N_1}{N_1-1}^{-4} - I = 0.00000$$

$$\frac{N_1}{N_1-1} - A = 0.00000$$
$$\frac{N_1^2}{(N_1^2-2\cdot N_1)+1} - B = 0.00000$$
$$\frac{N_1^3}{((N_1^3-3\cdot N_1^2)+3\cdot N_1)-1} - C = 0.00000$$
$$\frac{N_1^4}{(((N_1^4-4\cdot N_1^3)+6\cdot N_1^2)-4\cdot N_1)+1} - D = 0.00000$$
$$\frac{N_1^5}{((((N_1^5-5\cdot N_1^4)+10\cdot N_1^3)-10\cdot N_1^2)+5\cdot N_1)-1} - E = 0.00000$$

$$\frac{(((N_1^4-4\cdot N_1^3)+6\cdot N_1^2)-4\cdot N_1)+1}{N_1^4} - I = 0.00000$$
$$\frac{((N_1^3-3\cdot N_1^2)+3\cdot N_1)-1}{N_1^3} - H = 0.00000$$
$$\frac{(N_1^2-2\cdot N_1)+1}{N_1^2} - G = 0.00000$$
$$\frac{N_1-1}{N_1} - F = 0.00000$$

Plate 6



$N_1 = 3.11876$

$N_2 = 1.08464$

$\frac{N_1}{N_1-1} = 1.47197$

A = 1.59656
B = 2.35009
C = 3.45928
D = 5.09196
E = 7.49523
F = 0.73686
G = 0.50059
H = 0.34008
I = 0.23104

$N_2 \cdot \frac{N_1}{N_1-1}^{1} - A = 0.00000$

$N_2 \cdot \frac{N_1}{N_1-1}^{2} - B = 0.00000$

$N_2 \cdot \frac{N_1}{N_1-1}^{3} - C = 0.00000$

$N_2 \cdot \frac{N_1}{N_1-1}^{4} - D = 0.00000$

$N_2 \cdot \frac{N_1}{N_1-1}^{5} - E = 0.00000$

$N_2 \cdot \frac{N_1}{N_1-1}^{-1} - F = 0.00000$

$N_2 \cdot \frac{N_1}{N_1-1}^{-2} - G = 0.00000$

$N_2 \cdot \frac{N_1}{N_1-1}^{-3} - H = 0.00000$

$N_2 \cdot \frac{N_1}{N_1-1}^{-4} - I = 0.00000$

$\frac{N_1 \cdot N_2}{N_1-1} - A = 0.00000$

$\frac{N_1^2 \cdot N_2}{(N_1^2 - 2 \cdot N_1) + 1} - B = 0.00000$

$\frac{N_1^3 \cdot N_2}{((N_1^3 - 3 \cdot N_1^2) + 3 \cdot N_1) - 1} - C = 0.00000$

$\frac{N_1^4 \cdot N_2}{(((N_1^4 - 4 \cdot N_1^3) + 6 \cdot N_1^2) - 4 \cdot N_1) + 1} - D = 0.00000$

$\frac{N_1^5 \cdot N_2}{((((N_1^5 - 5 \cdot N_1^4) + 10 \cdot N_1^3) - 10 \cdot N_1^2) + 5 \cdot N_1) - 1} - E = 0.00000$

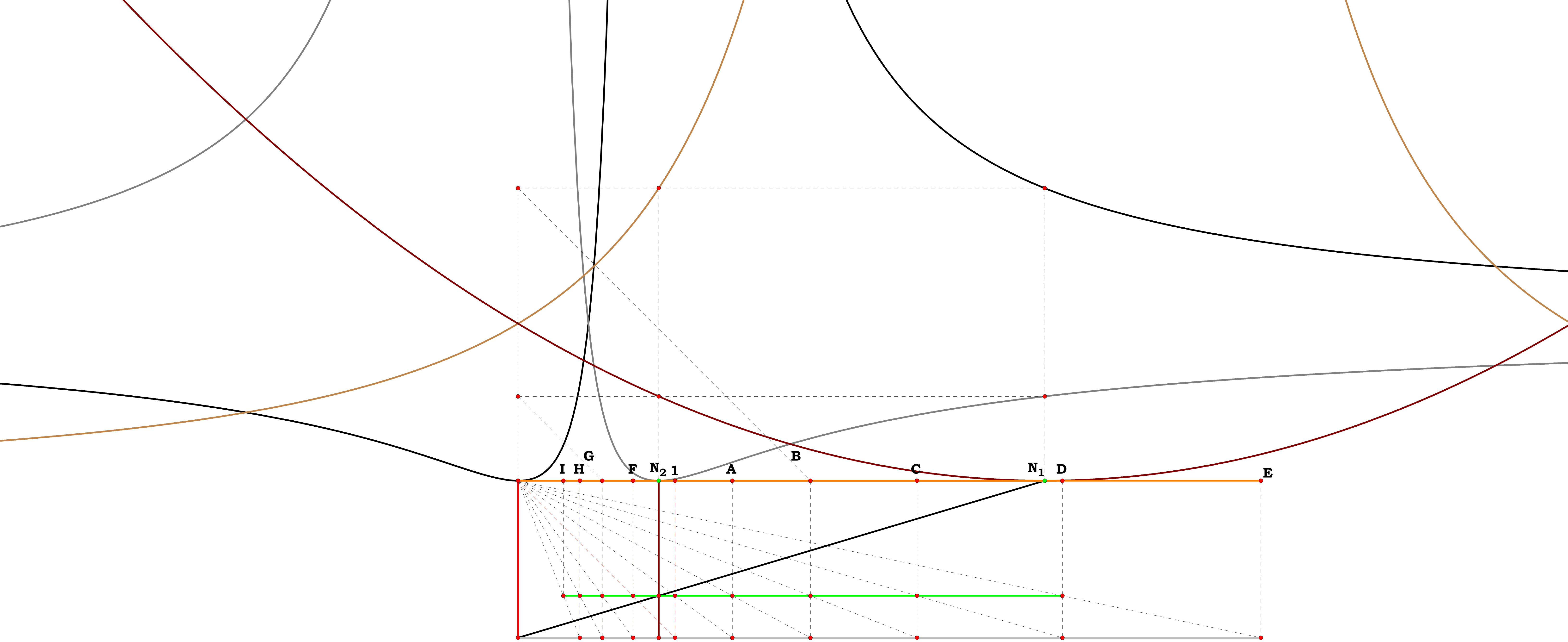
$\frac{(((N_1^4 \cdot N_2 - 4 \cdot N_1^3 \cdot N_2) + 6 \cdot N_1^2 \cdot N_2) - 4 \cdot N_1 \cdot N_2) + N_2}{N_1^4} - I = 0.00000$

$\frac{((N_1^3 \cdot N_2 - 3 \cdot N_1^2 \cdot N_2) + 3 \cdot N_1 \cdot N_2) - N_2}{N_1^3} - H = 0.00000$

$\frac{(N_1^2 \cdot N_2 - 2 \cdot N_1 \cdot N_2) + N_2}{N_1^2} - G = 0.00000$

$\frac{N_1 \cdot N_2 - N_2}{N_1} - F = 0.00000$

Plate 7



$N_1 = 3.35471$

$N_2 = 0.89626$

$\frac{N_1}{N_1-N_2} = 1.36456$

A = 1.36456
B = 1.86204
C = 2.54087
D = 3.46718
E = 4.73120
F = 0.73283
G = 0.53705
H = 0.39357
I = 0.28842

$\frac{N_1}{N_1-N_2}^{1} - A = 0.00000$

$\frac{N_1}{N_1-N_2}^{2} - B = 0.00000$

$\frac{N_1}{N_1-N_2}^{3} - C = 0.00000$

$\frac{N_1}{N_1-N_2}^{4} - D = 0.00000$

$\frac{N_1}{N_1-N_2}^{5} - E = 0.00000$

$\frac{N_1}{N_1-N_2}^{-1} - F = 0.00000$

$\frac{N_1}{N_1-N_2}^{-2} - G = 0.00000$

$\frac{N_1}{N_1-N_2}^{-3} - H = 0.00000$

$\frac{N_1}{N_1-N_2}^{-4} - I = 0.00000$

Plate 8

$\frac{N_1}{N_1-N_2} - A = 0.00000$

$\frac{N_1^2}{(N_1^2-2\cdot N_1\cdot N_2)+N_2^2} - B = 0.00000$

$\frac{N_1^3}{((N_1^3-3\cdot N_1^2\cdot N_2)+3\cdot N_1\cdot N_2^2)-N_2^3} - C = 0.00000$

$\frac{N_1^4}{(((N_1^4-4\cdot N_1^3\cdot N_2)+6\cdot N_1^2\cdot N_2^2)-4\cdot N_1\cdot N_2^3)+N_2^4} - D = 0.00000$

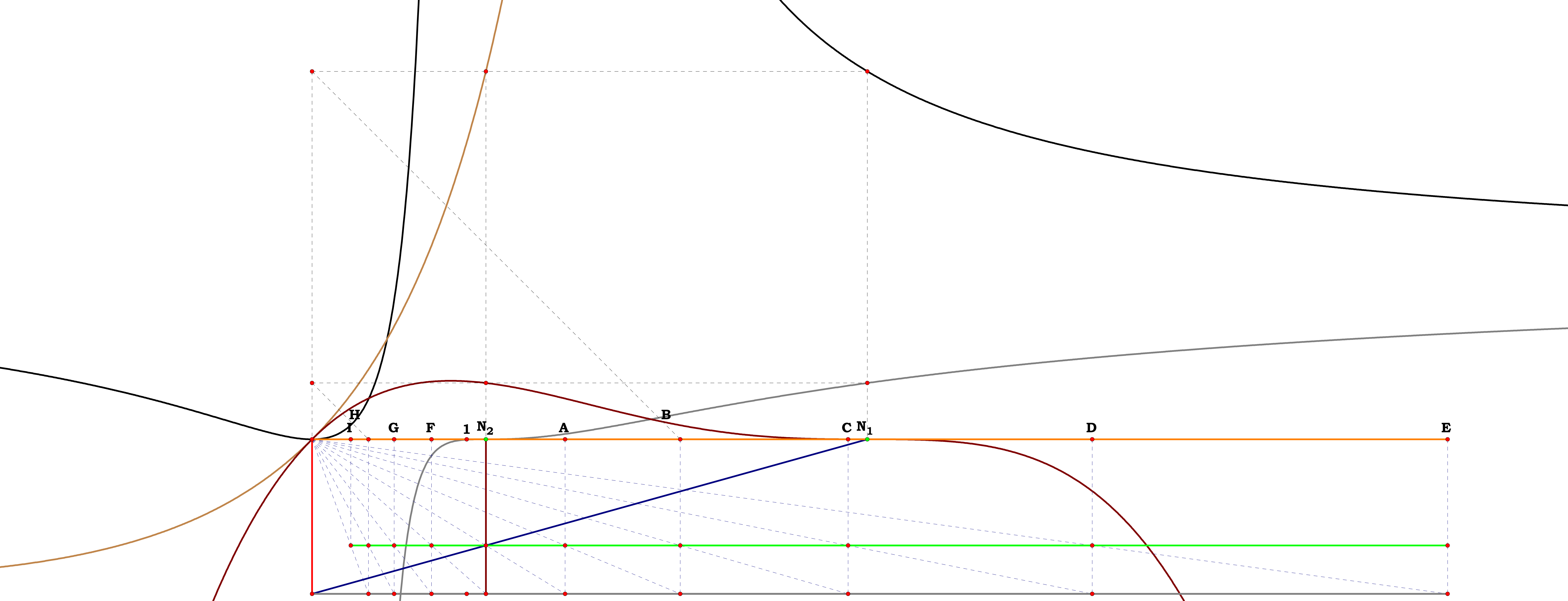
$\frac{N_1^5}{((((N_1^5-5\cdot N_1^4\cdot N_2)+10\cdot N_1^3\cdot N_2^2)-10\cdot N_1^2\cdot N_2^3)+5\cdot N_1\cdot N_2^4)-N_2^5} - E = 0.00000$

$\frac{(((N_1^4-4\cdot N_1^3\cdot N_2)+6\cdot N_1^2\cdot N_2^2)-4\cdot N_1\cdot N_2^3)+N_2^4}{N_1^4} - I = 0.00000$

$\frac{((N_1^3-3\cdot N_1^2\cdot N_2)+3\cdot N_1\cdot N_2^2)-N_2^3}{N_1^3} - H = 0.00000$

$\frac{(N_1^2-2\cdot N_1\cdot N_2)+N_2^2}{N_1^2} - G = 0.00000$

$\frac{N_1-N_2}{N_1} - F = 0.00000$



$N_1 = 3.58991$

$N_2 = 1.12360$

$\frac{N_1}{N_1 - N_2} = 1.45558$

A = 1.63549
B = 2.38058
C = 3.46513
D = 5.04377
E = 7.34160
F = 0.77193
G = 0.53032
H = 0.36434
I = 0.25030

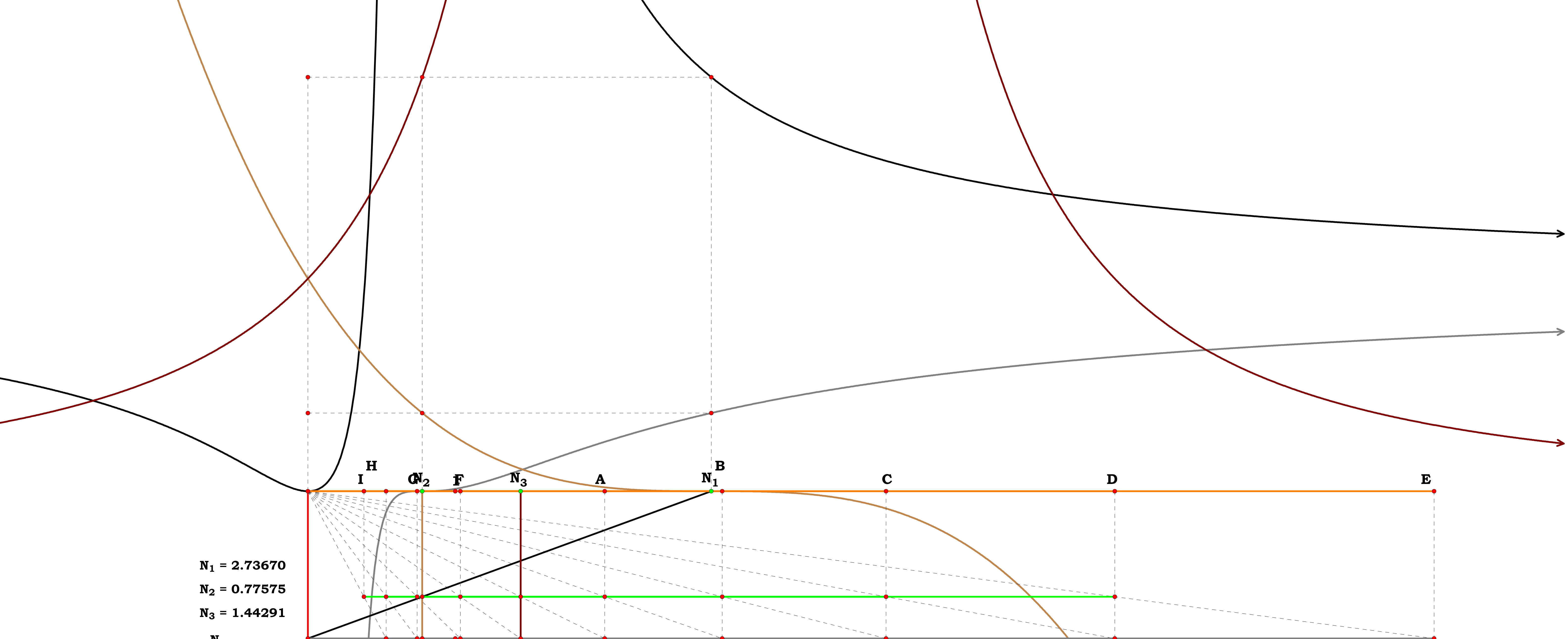
$$N_2 \cdot \left(\frac{N_1}{N_1-N_2}\right)^{1} - A = 0.00000$$
$$N_2 \cdot \left(\frac{N_1}{N_1-N_2}\right)^{2} - B = 0.00000$$
$$N_2 \cdot \left(\frac{N_1}{N_1-N_2}\right)^{3} - C = 0.00000$$
$$N_2 \cdot \left(\frac{N_1}{N_1-N_2}\right)^{4} - D = 0.00000$$
$$N_2 \cdot \left(\frac{N_1}{N_1-N_2}\right)^{5} - E = 0.00000$$

$$N_2 \cdot \left(\frac{N_1}{N_1-N_2}\right)^{-1} - F = 0.00000$$
$$N_2 \cdot \left(\frac{N_1}{N_1-N_2}\right)^{-2} - G = 0.00000$$
$$N_2 \cdot \left(\frac{N_1}{N_1-N_2}\right)^{-3} - H = 0.00000$$
$$N_2 \cdot \left(\frac{N_1}{N_1-N_2}\right)^{-4} - I = 0.00000$$

$$\frac{N_1 \cdot N_2}{N_1 - N_2} - A = 0.00000$$
$$\frac{N_1^2 \cdot N_2}{(N_1^2 - 2 \cdot N_1 \cdot N_2) + N_2^2} - B = 0.00000$$
$$\frac{N_1^3 \cdot N_2}{((N_1^3 - 3 \cdot N_1^2 \cdot N_2) + 3 \cdot N_1 \cdot N_2^2) - N_2^3} - C = 0.00000$$
$$\frac{N_1^4 \cdot N_2}{(((N_1^4 - 4 \cdot N_1^3 \cdot N_2) + 6 \cdot N_1^2 \cdot N_2^2) - 4 \cdot N_1 \cdot N_2^3) + N_2^4} - D = 0.00000$$
$$\frac{N_1^5 \cdot N_2}{((((N_1^5 - 5 \cdot N_1^4 \cdot N_2) + 10 \cdot N_1^3 \cdot N_2^2) - 10 \cdot N_1^2 \cdot N_2^3) + 5 \cdot N_1 \cdot N_2^4) - N_2^5} - E = 0.00000$$

$$\frac{(((N_1^4 \cdot N_2 - 4 \cdot N_1^3 \cdot N_2^2) + 6 \cdot N_1^2 \cdot N_2^3) - 4 \cdot N_1 \cdot N_2^4) + N_2^5}{N_1^4} - I = 0.00000$$
$$\frac{((N_1^3 \cdot N_2 - 3 \cdot N_1^2 \cdot N_2^2) + 3 \cdot N_1 \cdot N_2^3) - N_2^4}{N_1^3} - H = 0.00000$$
$$\frac{(N_1^2 \cdot N_2 - 2 \cdot N_1 \cdot N_2^2) + N_2^3}{N_1^2} - G = 0.00000$$
$$\frac{N_1 \cdot N_2 - N_2^2}{N_1} - F = 0.00000$$

Plate 9



$N_1 = 2.73670$

$N_2 = 0.77575$

$N_3 = 1.44291$

$\frac{N_1}{N_1 - N_2} = 1.39560$

A = 2.01373

B = 2.81035

C = 3.92211

D = 5.47368

E = 7.63905

F = 1.03391

G = 0.74083

H = 0.53084

I = 0.38037

$N_3 \cdot \frac{N_1}{N_1 - N_2}^{1} - A = 0.00000$

$N_3 \cdot \frac{N_1}{N_1 - N_2}^{2} - B = 0.00000$

$N_3 \cdot \frac{N_1}{N_1 - N_2}^{3} - C = 0.00000$

$N_3 \cdot \frac{N_1}{N_1 - N_2}^{4} - D = 0.00000$

$N_3 \cdot \frac{N_1}{N_1 - N_2}^{5} - E = 0.00000$

$N_3 \cdot \frac{N_1}{N_1 - N_2}^{-1} - F = 0.00000$

$N_3 \cdot \frac{N_1}{N_1 - N_2}^{-2} - G = 0.00000$

$N_3 \cdot \frac{N_1}{N_1 - N_2}^{-3} - H = 0.00000$

$N_3 \cdot \frac{N_1}{N_1 - N_2}^{-4} - I = 0.00000$

Plate 10

$\frac{N_1 \cdot N_3}{N_1 - N_2} - A = 0.00000$

$\frac{N_1^2 \cdot N_3}{(N_1^2 - 2 \cdot N_1 \cdot N_2) + N_2^2} - B = 0.00000$

$\frac{N_1^3 \cdot N_3}{((N_1^3 - 3 \cdot N_1^2 \cdot N_2) + 3 \cdot N_1 \cdot N_2^2) - N_2^3} - C = 0.00000$

$\frac{N_1^4 \cdot N_3}{(((N_1^4 - 4 \cdot N_1^3 \cdot N_2) + 6 \cdot N_1^2 \cdot N_2^2) - 4 \cdot N_1 \cdot N_2^3) + N_2^4} - D = 0.00000$

$\frac{N_1^5 \cdot N_3}{((((N_1^5 - 5 \cdot N_1^4 \cdot N_2) + 10 \cdot N_1^3 \cdot N_2^2) - 10 \cdot N_1^2 \cdot N_2^3) + 5 \cdot N_1 \cdot N_2^4) - N_2^5} - E = 0.00000$

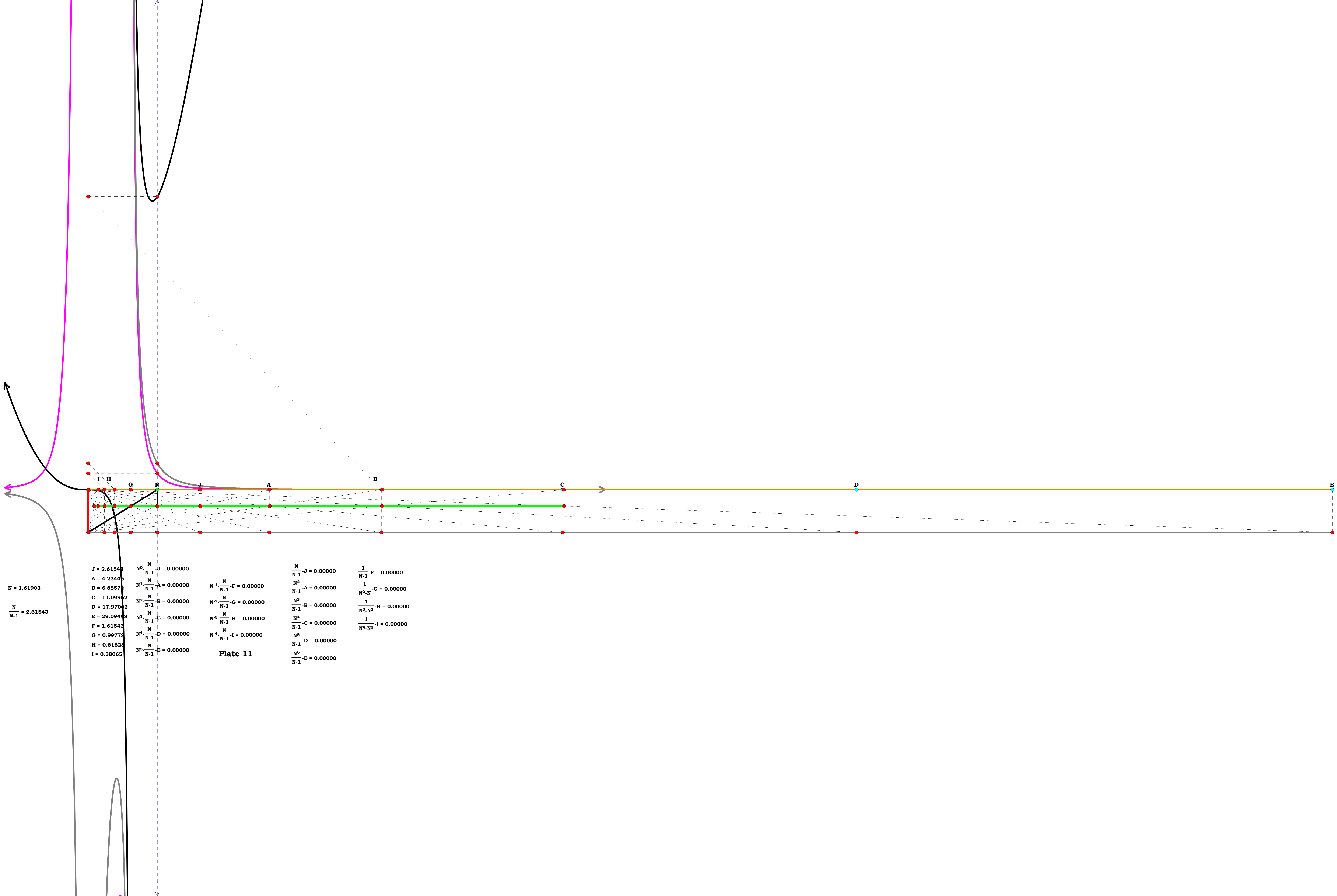
$\frac{(((N_1^4 \cdot N_3 - 4 \cdot N_1^3 \cdot N_2 \cdot N_3) + 6 \cdot N_1^2 \cdot N_2^2 \cdot N_3) - 4 \cdot N_1 \cdot N_2^3 \cdot N_3) + N_2^4 \cdot N_3}{N_1^4} - I = 0.00000$

$\frac{((N_1^3 \cdot N_3 - 3 \cdot N_1^2 \cdot N_2 \cdot N_3) + 3 \cdot N_1 \cdot N_2^2 \cdot N_3) - N_2^3 \cdot N_3}{N_1^3} - H = 0.00000$

$\frac{(N_1^2 \cdot N_3 - 2 \cdot N_1 \cdot N_2 \cdot N_3) + N_2^2 \cdot N_3}{N_1^2} - G = 0.00000$

$\frac{N_1 \cdot N_3 - N_2 \cdot N_3}{N_1} - F = 0.00000$

Zero from bottom then top.



$N = 1.61903$

$\frac{N}{N-1} = 2.61543$

$J = 2.61543$
$A = 4.23446$
$B = 6.85572$
$C = 11.09962$
$D = 17.97062$
$E = 29.09498$
$F = 1.61543$
$G = 0.99778$
$H = 0.61628$
$I = 0.38065$

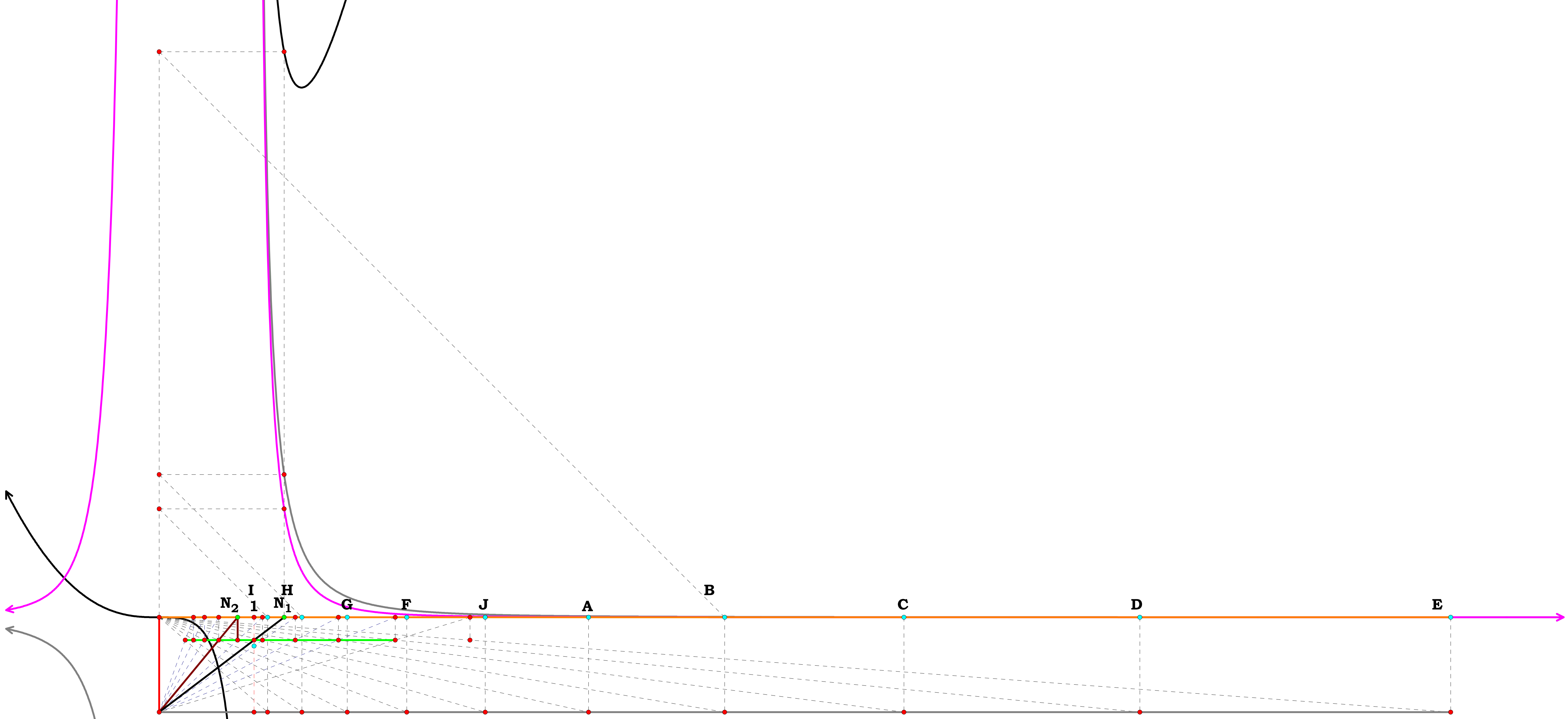
$N^0 \cdot \frac{N}{N-1} - J = 0.00000$
$N^1 \cdot \frac{N}{N-1} - A = 0.00000$
$N^2 \cdot \frac{N}{N-1} - B = 0.00000$
$N^3 \cdot \frac{N}{N-1} - C = 0.00000$
$N^4 \cdot \frac{N}{N-1} - D = 0.00000$
$N^5 \cdot \frac{N}{N-1} - E = 0.00000$

$N^{-1} \cdot \frac{N}{N-1} - F = 0.00000$
$N^{-2} \cdot \frac{N}{N-1} - G = 0.00000$
$N^{-3} \cdot \frac{N}{N-1} - H = 0.00000$
$N^{-4} \cdot \frac{N}{N-1} - I = 0.00000$

Plate 11

$\frac{N}{N-1} - J = 0.00000$
$\frac{N^2}{N-1} - A = 0.00000$
$\frac{N^3}{N-1} - B = 0.00000$
$\frac{N^4}{N-1} - C = 0.00000$
$\frac{N^5}{N-1} - D = 0.00000$
$\frac{N^6}{N-1} - E = 0.00000$

$\frac{1}{N-1} - F = 0.00000$
$\frac{1}{N^2-N} - G = 0.00000$
$\frac{1}{N^3-N^2} - H = 0.00000$
$\frac{1}{N^4-N^3} - I = 0.00000$



$N_1 = 1.31693$

$N_2 = 0.82679$

$\frac{N_1 \cdot N_2}{N_1 - 1} = 3.43551$

J = 3.43551
A = 4.52433
B = 5.95822
C = 7.84657
D = 10.33339
E = 13.60837
F = 2.60872
G = 1.98091
H = 1.50419
I = 1.14219

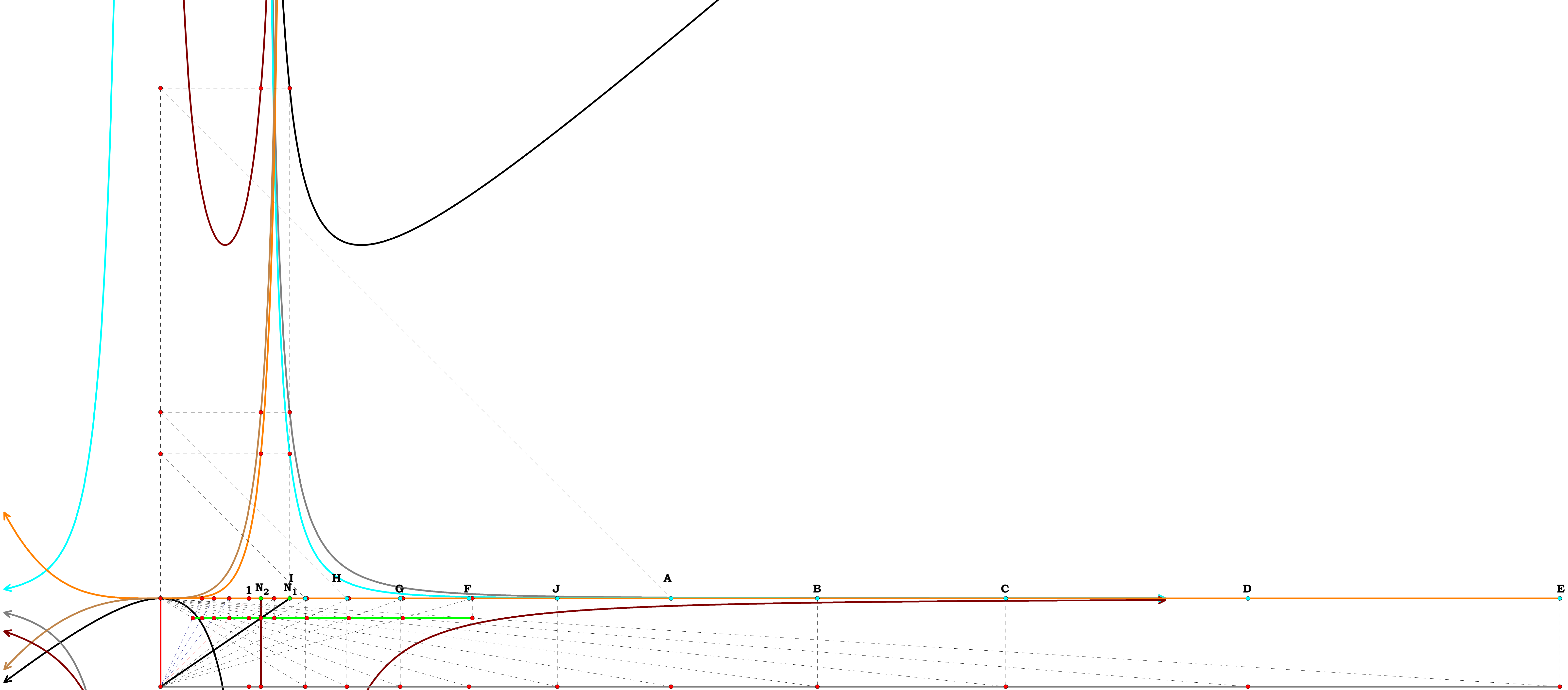
$$N_1^{0} \cdot \frac{N_1 \cdot N_2}{N_1 - 1} - J = 0.00000$$
$$N_1^{1} \cdot \frac{N_1 \cdot N_2}{N_1 - 1} - A = 0.00000$$
$$N_1^{2} \cdot \frac{N_1 \cdot N_2}{N_1 - 1} - B = 0.00000$$
$$N_1^{3} \cdot \frac{N_1 \cdot N_2}{N_1 - 1} - C = 0.00000$$
$$N_1^{4} \cdot \frac{N_1 \cdot N_2}{N_1 - 1} - D = 0.00000$$
$$N_1^{5} \cdot \frac{N_1 \cdot N_2}{N_1 - 1} - E = 0.00000$$

$$N_1^{-1} \cdot \frac{N_1 \cdot N_2}{N_1 - 1} - F = 0.00000$$
$$N_1^{-2} \cdot \frac{N_1 \cdot N_2}{N_1 - 1} - G = 0.00000$$
$$N_1^{-3} \cdot \frac{N_1 \cdot N_2}{N_1 - 1} - H = 0.00000$$
$$N_1^{-4} \cdot \frac{N_1 \cdot N_2}{N_1 - 1} - I = 0.00000$$

Plate 12

$$\frac{N_1 \cdot N_2}{N_1 - 1} - J = 0.00000$$
$$\frac{N_1^{2} \cdot N_2}{N_1 - 1} - A = 0.00000$$
$$\frac{N_1^{3} \cdot N_2}{N_1 - 1} - B = 0.00000$$
$$\frac{N_1^{4} \cdot N_2}{N_1 - 1} - C = 0.00000$$
$$\frac{N_1^{5} \cdot N_2}{N_1 - 1} - D = 0.00000$$
$$\frac{N_1^{6} \cdot N_2}{N_1 - 1} - E = 0.00000$$

$$\frac{N_2}{N_1 - 1} - F = 0.00000$$
$$\frac{N_2}{N_1^{2} - N_1} - G = 0.00000$$
$$\frac{N_2}{N_1^{3} - N_1^{2}} - H = 0.00000$$
$$\frac{N_2}{N_1^{4} - N_1^{3}} - I = 0.00000$$



$N_1 = 1.46046$

$N_2 = 1.13509$

$\frac{N_1}{N_2} = 1.28665$

$\frac{N_1}{N_1 - N_2} = 4.48863$

J = 4.48863
A = 5.77527
B = 7.43073
C = 9.56072
D = 12.30126
E = 15.82736
F = 3.48863
G = 2.71141
H = 2.10735
I = 1.63786

$\frac{N_1{}^0}{N_2} \cdot \frac{N_1}{N_1 - N_2} - J = 0.00000$

$\frac{N_1{}^1}{N_2} \cdot \frac{N_1}{N_1 - N_2} - A = 0.00000$

$\frac{N_1{}^2}{N_2} \cdot \frac{N_1}{N_1 - N_2} - B = 0.00000$

$\frac{N_1{}^3}{N_2} \cdot \frac{N_1}{N_1 - N_2} - C = 0.00000$

$\frac{N_1{}^4}{N_2} \cdot \frac{N_1}{N_1 - N_2} - D = 0.00000$

$\frac{N_1{}^5}{N_2} \cdot \frac{N_1}{N_1 - N_2} - E = 0.00000$

$\frac{N_1{}^{-1}}{N_2} \cdot \frac{N_1}{N_1 - N_2} - F = 0.00000$

$\frac{N_1{}^{-2}}{N_2} \cdot \frac{N_1}{N_1 - N_2} - G = 0.00000$

$\frac{N_1{}^{-3}}{N_2} \cdot \frac{N_1}{N_1 - N_2} - H = 0.00000$

$\frac{N_1{}^{-4}}{N_2} \cdot \frac{N_1}{N_1 - N_2} - I = 0.00000$

Plate 13

$\frac{N_1}{N_1 - N_2} - J = 0.00000$

$\frac{N_1{}^2}{N_1 \cdot N_2 - N_2{}^2} - A = 0.00000$

$\frac{N_1{}^3}{N_1 \cdot N_2{}^2 - N_2{}^3} - B = 0.00000$

$\frac{N_1{}^4}{N_1 \cdot N_2{}^3 - N_2{}^4} - C = 0.00000$

$\frac{N_1{}^5}{N_1 \cdot N_2{}^4 - N_2{}^5} - D = 0.00000$

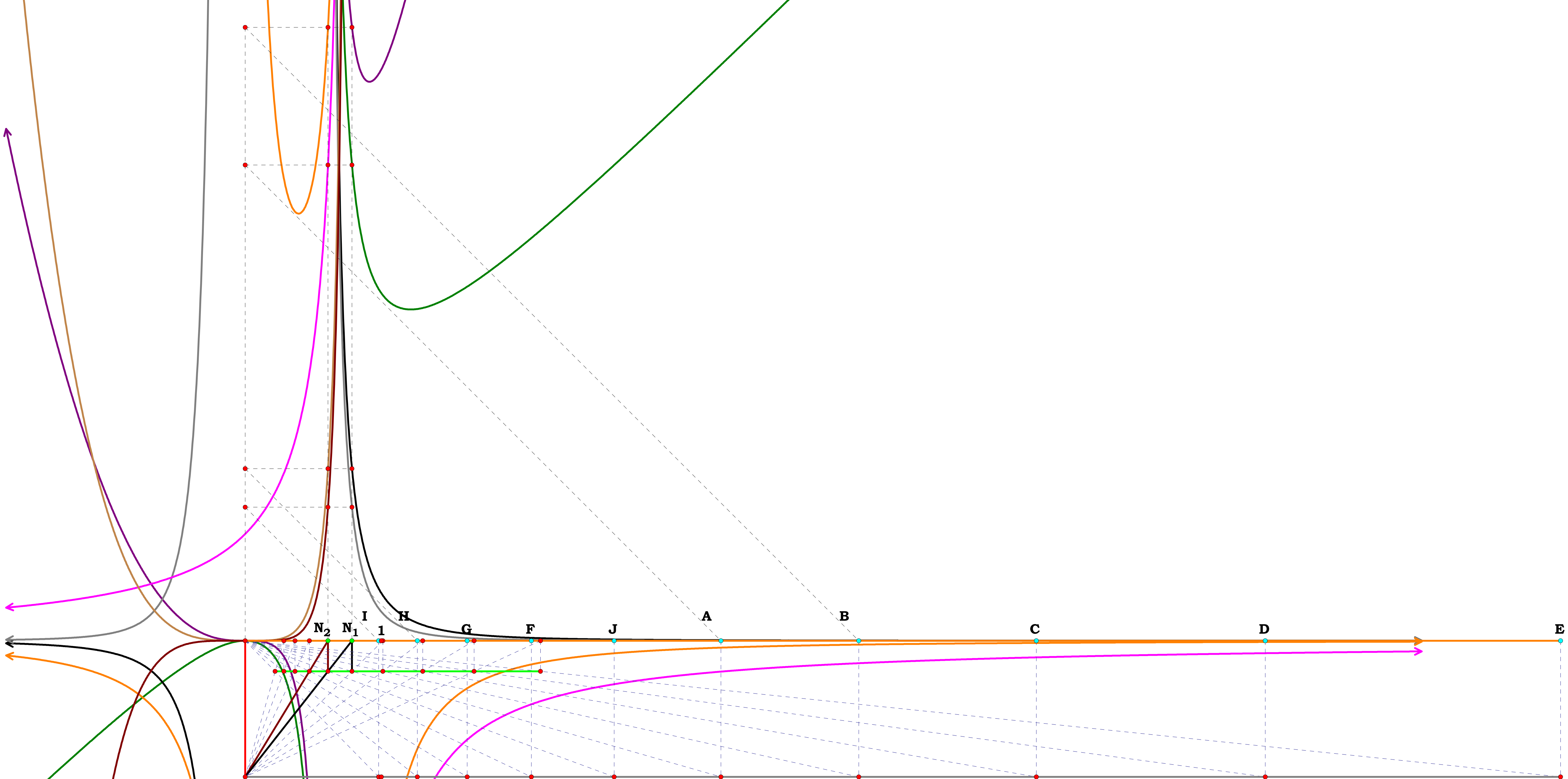
$\frac{N_1{}^6}{N_1 \cdot N_2{}^5 - N_2{}^6} - E = 0.00000$

$\frac{N_2}{N_1 - N_2} - F = 0.00000$

$\frac{N_2{}^2}{N_1{}^2 - N_1 \cdot N_2} - G = 0.00000$

$\frac{N_2{}^3}{N_1{}^3 - N_1{}^2 \cdot N_2} - H = 0.00000$

$\frac{N_2{}^4}{N_1{}^4 - N_1{}^3 \cdot N_2} - I = 0.00000$



$N_1 = 0.78415$

$N_2 = 0.60814$

$\frac{N_1}{N_2} = 1.28943$

$\frac{N_1 \cdot N_2}{N_1 - N_2} = 2.70928$

J = 2.70928

A = 3.49343

B = 4.50454

C = 5.80830

D = 7.48941

E = 9.65708

F = 2.10114

G = 1.62951

H = 1.26374

I = 0.98008

$\frac{N_1{}^0}{N_2} \cdot \frac{N_1 \cdot N_2}{N_1 - N_2} - J = 0.00000$

$\frac{N_1{}^1}{N_2} \cdot \frac{N_1 \cdot N_2}{N_1 - N_2} - A = 0.00000$

$\frac{N_1{}^2}{N_2} \cdot \frac{N_1 \cdot N_2}{N_1 - N_2} - B = 0.00000$

$\frac{N_1{}^3}{N_2} \cdot \frac{N_1 \cdot N_2}{N_1 - N_2} - C = 0.00000$

$\frac{N_1{}^4}{N_2} \cdot \frac{N_1 \cdot N_2}{N_1 - N_2} - D = 0.00000$

$\frac{N_1{}^5}{N_2} \cdot \frac{N_1 \cdot N_2}{N_1 - N_2} - E = 0.00000$

$\frac{N_1{}^{-1}}{N_2} \cdot \frac{N_1 \cdot N_2}{N_1 - N_2} - F = 0.00000$

$\frac{N_1{}^{-2}}{N_2} \cdot \frac{N_1 \cdot N_2}{N_1 - N_2} - G = 0.00000$

$\frac{N_1{}^{-3}}{N_2} \cdot \frac{N_1 \cdot N_2}{N_1 - N_2} - H = 0.00000$

$\frac{N_1{}^{-4}}{N_2} \cdot \frac{N_1 \cdot N_2}{N_1 - N_2} - I = 0.00000$

Plate 14

$\frac{N_1 \cdot N_2}{N_1 - N_2} - J = 0.00000$

$\frac{N_1{}^2}{N_1 - N_2} - A = 0.00000$

$\frac{N_1{}^3}{N_1 \cdot N_2 - N_2{}^2} - B = 0.00000$

$\frac{N_1{}^4}{N_1 \cdot N_2{}^2 - N_2{}^3} - C = 0.00000$

$\frac{N_1{}^5}{N_1 \cdot N_2{}^3 - N_2{}^4} - D = 0.00000$

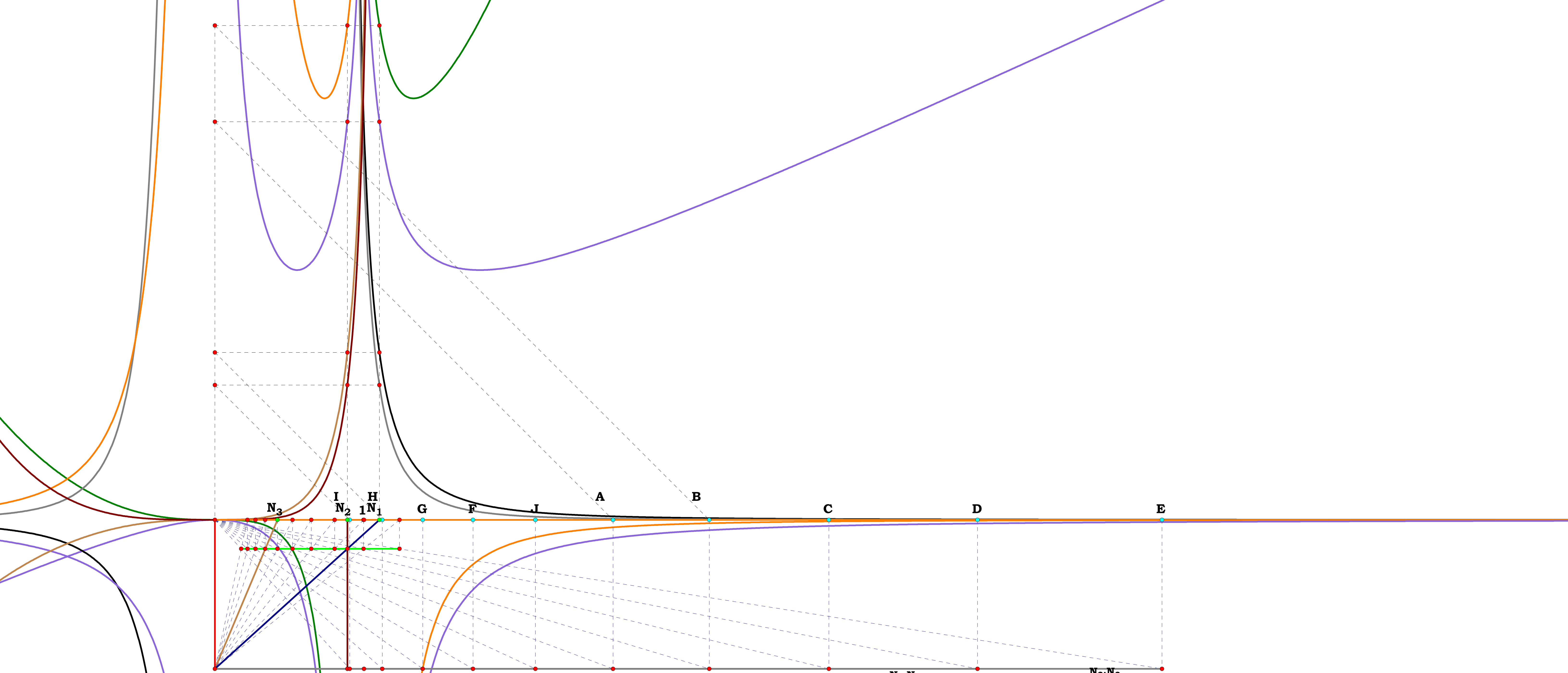
$\frac{N_1{}^6}{N_1 \cdot N_2{}^4 - N_2{}^5} - E = 0.00000$

$\frac{N_2{}^2}{N_1 - N_2} - F = 0.00000$

$\frac{N_2{}^3}{N_1{}^2 - N_1 \cdot N_2} - G = 0.00000$

$\frac{N_2{}^4}{N_1{}^3 - N_1{}^2 \cdot N_2} - H = 0.00000$

$\frac{N_2{}^5}{N_1{}^4 - N_1{}^3 \cdot N_2} - I = 0.00000$



$N_1 = 1.10350$

$N_2 = 0.88853$

$N_3 = 0.41903$

$\frac{N_1}{N_2} = 1.24195$

$\frac{N_1 \cdot N_3}{N_1 - N_2} = 2.15096$

J = 2.15096
A = 2.67138
B = 3.31772
C = 4.12043
D = 5.11735
E = 6.35548
F = 1.73193
G = 1.39453
H = 1.12286
I = 0.90411

$\frac{N_1{}^0}{N_2} \cdot \frac{N_1 \cdot N_3}{N_1 - N_2} - J = 0.00000$

$\frac{N_1{}^1}{N_2} \cdot \frac{N_1 \cdot N_3}{N_1 - N_2} - A = 0.00000$

$\frac{N_1{}^2}{N_2} \cdot \frac{N_1 \cdot N_3}{N_1 - N_2} - B = 0.00000$

$\frac{N_1{}^3}{N_2} \cdot \frac{N_1 \cdot N_3}{N_1 - N_2} - C = 0.00000$

$\frac{N_1{}^4}{N_2} \cdot \frac{N_1 \cdot N_3}{N_1 - N_2} - D = 0.00000$

$\frac{N_1{}^5}{N_2} \cdot \frac{N_1 \cdot N_3}{N_1 - N_2} - E = 0.00000$

$\frac{N_1{}^{-1}}{N_2} \cdot \frac{N_1 \cdot N_3}{N_1 - N_2} - F = 0.00000$

$\frac{N_1{}^{-2}}{N_2} \cdot \frac{N_1 \cdot N_3}{N_1 - N_2} - G = 0.00000$

$\frac{N_1{}^{-3}}{N_2} \cdot \frac{N_1 \cdot N_3}{N_1 - N_2} - H = 0.00000$

$\frac{N_1{}^{-4}}{N_2} \cdot \frac{N_1 \cdot N_3}{N_1 - N_2} - I = 0.00000$

Plate 15

$\frac{N_1 \cdot N_3}{N_1 - N_2} - J = 0.00000$

$\frac{N_1{}^2 \cdot N_3}{N_1 \cdot N_2 - N_2{}^2} - A = 0.00000$

$\frac{N_1{}^3 \cdot N_3}{N_1 \cdot N_2{}^2 - N_2{}^3} - B = 0.00000$

$\frac{N_1{}^4 \cdot N_3}{N_1 \cdot N_2{}^3 - N_2{}^4} - C = 0.00000$

$\frac{N_1{}^5 \cdot N_3}{N_1 \cdot N_2{}^4 - N_2{}^5} - D = 0.00000$

$\frac{N_1{}^6 \cdot N_3}{N_1 \cdot N_2{}^5 - N_2{}^6} - E = 0.00000$

$\frac{N_2 \cdot N_3}{N_1 - N_2} - F = 0.00000$

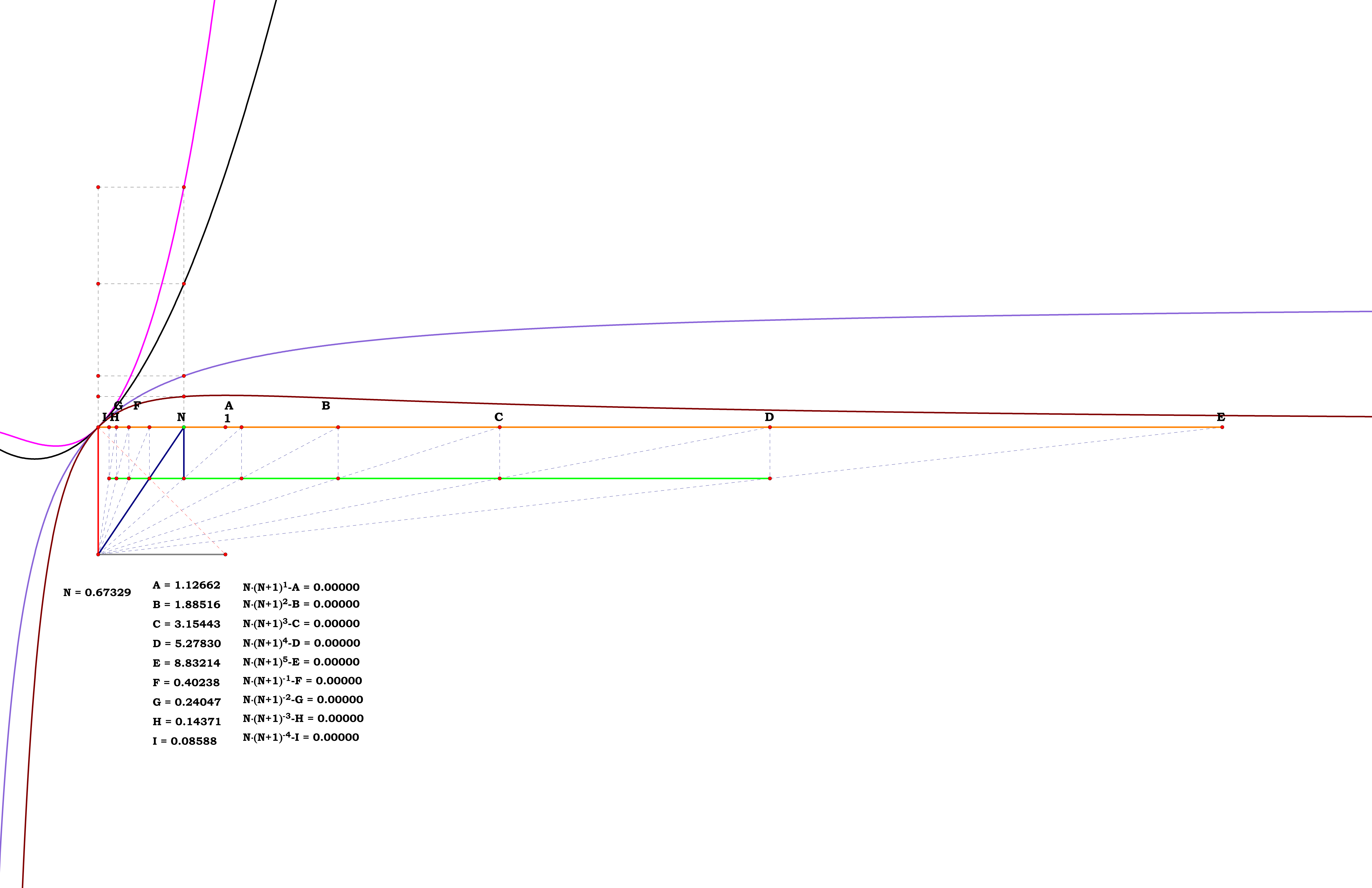
$\frac{N_2{}^2 \cdot N_3}{N_1{}^2 - N_1 \cdot N_2} - G = 0.00000$

$\frac{N_2{}^3 \cdot N_3}{N_1{}^3 - N_1{}^2 \cdot N_2} - H = 0.00000$

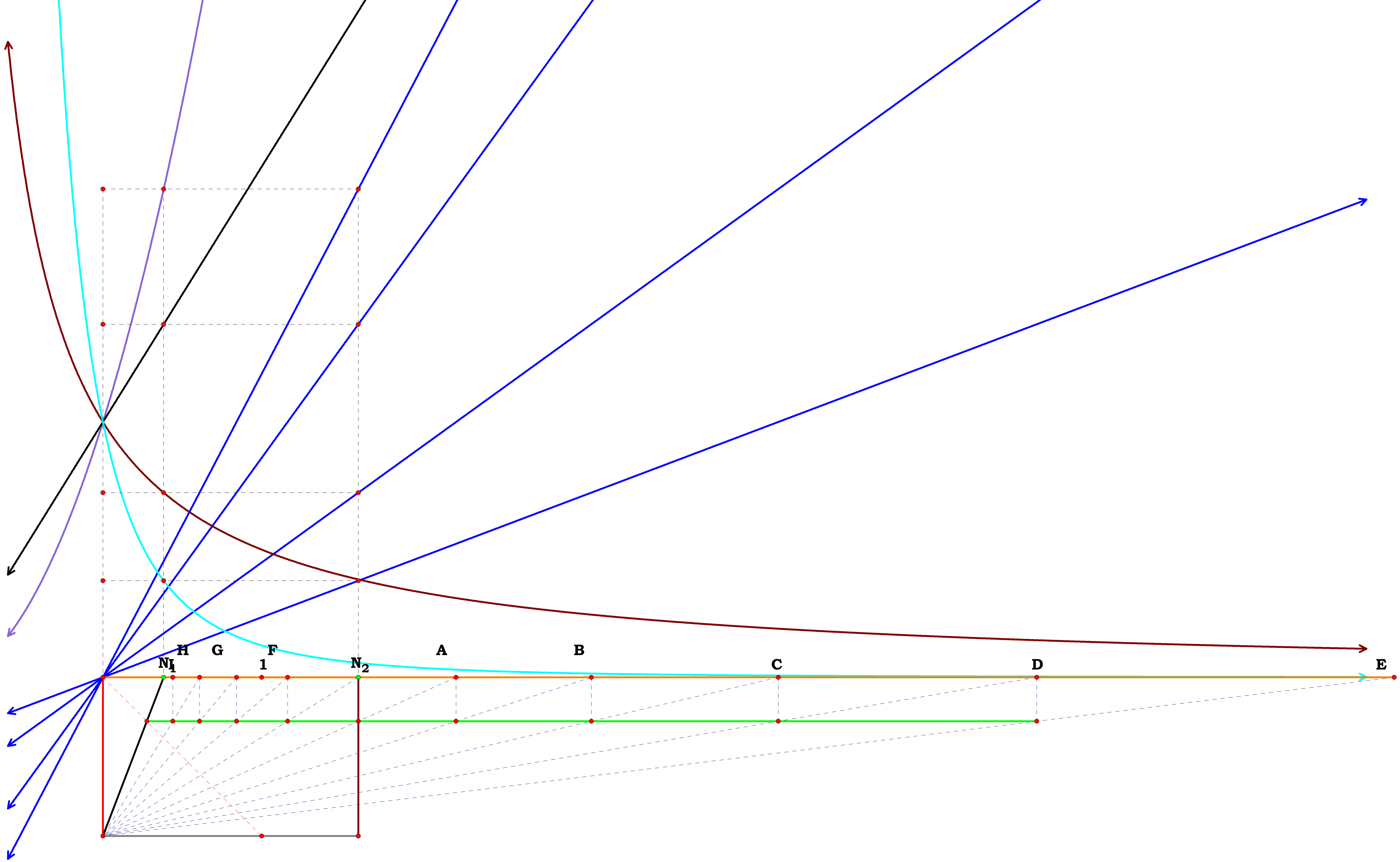
$\frac{N_2{}^4 \cdot N_3}{N_1{}^4 - N_1{}^3 \cdot N_2} - I = 0.00000$

Exponential Series Notebook 2

Zero from bottom.



I H G F N A 1 B C D E
N = 0.67329
A = 1.12662
B = 1.88516
C = 3.15443
D = 5.27830
E = 8.83214
F = 0.40238
G = 0.24047
H = 0.14371
I = 0.08588
N·(N+1)^1-A = 0.00000
N·(N+1)^2-B = 0.00000
N·(N+1)^3-C = 0.00000
N·(N+1)^4-D = 0.00000
N·(N+1)^5-E = 0.00000
N·(N+1)^-1-F = 0.00000
N·(N+1)^-2-G = 0.00000
N·(N+1)^-3-H = 0.00000
N·(N+1)^-4-I = 0.00000



$N_1 = 0.38279$

$N_2 = 1.60857$

A = 2.22432

B = 3.07576

C = 4.25313

D = 5.88118

E = 8.13244

F = 1.16328

G = 0.84126

H = 0.60838

I = 0.43996

$N_2 \cdot (N_1+1)^1 - A = 0.00000$

$N_2 \cdot (N_1+1)^2 - B = 0.00000$

$N_2 \cdot (N_1+1)^3 - C = 0.00000$

$N_2 \cdot (N_1+1)^4 - D = 0.00000$

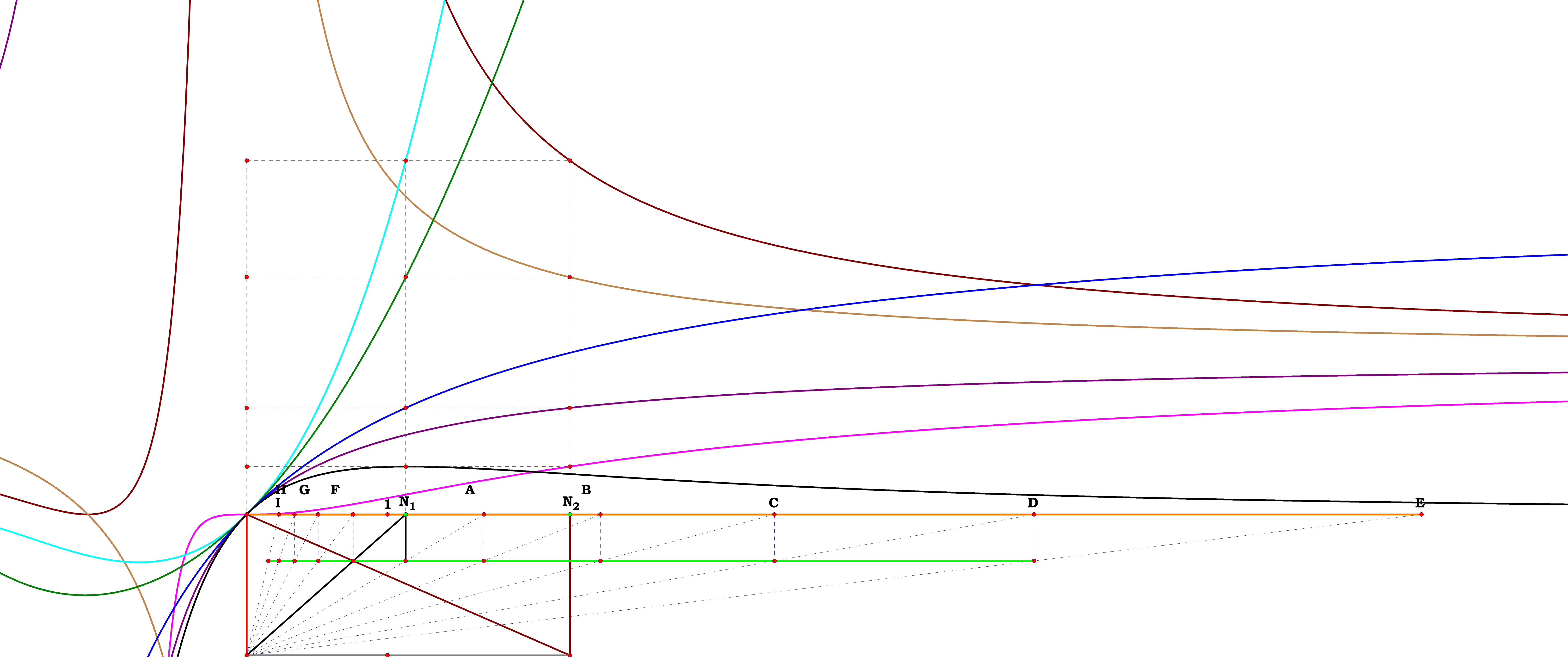
$N_2 \cdot (N_1+1)^5 - E = 0.00000$

$N_2 \cdot (N_1+1)^{-1} - F = 0.00000$

$N_2 \cdot (N_1+1)^{-2} - G = 0.00000$

$N_2 \cdot (N_1+1)^{-3} - H = 0.00000$

$N_2 \cdot (N_1+1)^{-4} - I = 0.00000$



$N_1 = 1.12857$

$N_2 = 2.29441$

A = 1.68369
B = 2.51186
C = 3.74738
D = 5.59064
E = 8.34056
F = 0.75648
G = 0.50706
H = 0.33988
I = 0.22782

$N_1 \cdot \frac{N_1+N_2}{N_2}^{1} - A = 0.00000$

$N_1 \cdot \frac{N_1+N_2}{N_2}^{2} - B = 0.00000$

$N_1 \cdot \frac{N_1+N_2}{N_2}^{3} - C = 0.00000$

$N_1 \cdot \frac{N_1+N_2}{N_2}^{4} - D = 0.00000$

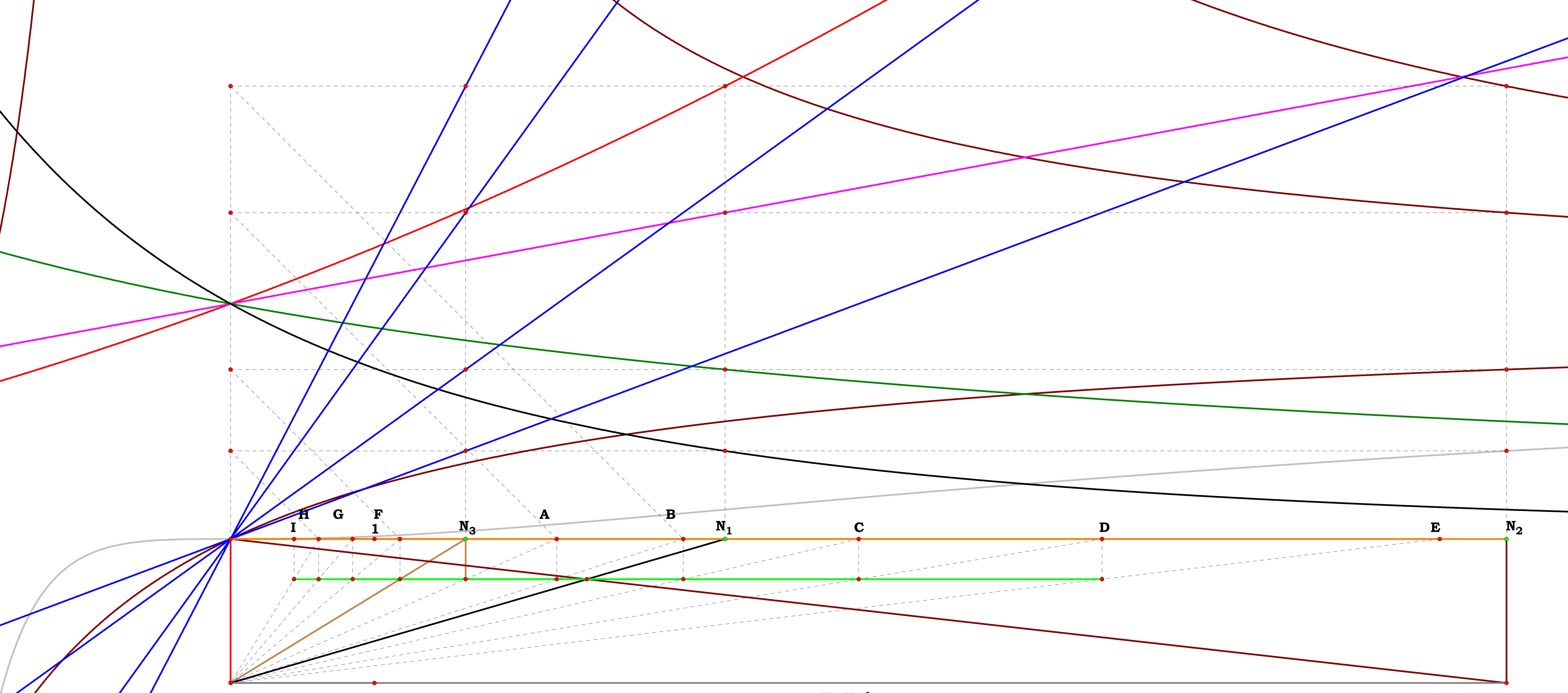
$N_1 \cdot \frac{N_1+N_2}{N_2}^{5} - E = 0.00000$

$N_1 \cdot \frac{N_1+N_2}{N_2}^{-1} - F = 0.00000$

$N_1 \cdot \frac{N_1+N_2}{N_2}^{-2} - G = 0.00000$

$N_1 \cdot \frac{N_1+N_2}{N_2}^{-3} - H = 0.00000$

$N_1 \cdot \frac{N_1+N_2}{N_2}^{-4} - I = 0.00000$



$N_1 = 3.43566$

$N_2 = 8.86571$

$N_3 = 1.63369$

A = 2.26679

B = 3.14522

C = 4.36406

D = 6.05523

E = 8.40177

F = 1.17742

G = 0.84858

H = 0.61158

I = 0.44077

$N_3 \cdot \frac{N_1+N_2\,^{1}}{N_2} - A = 0.00000$

$N_3 \cdot \frac{N_1+N_2\,^{2}}{N_2} - B = 0.00000$

$N_3 \cdot \frac{N_1+N_2\,^{3}}{N_2} - C = 0.00000$

$N_3 \cdot \frac{N_1+N_2\,^{4}}{N_2} - D = 0.00000$

$N_3 \cdot \frac{N_1+N_2\,^{5}}{N_2} - E = 0.00000$

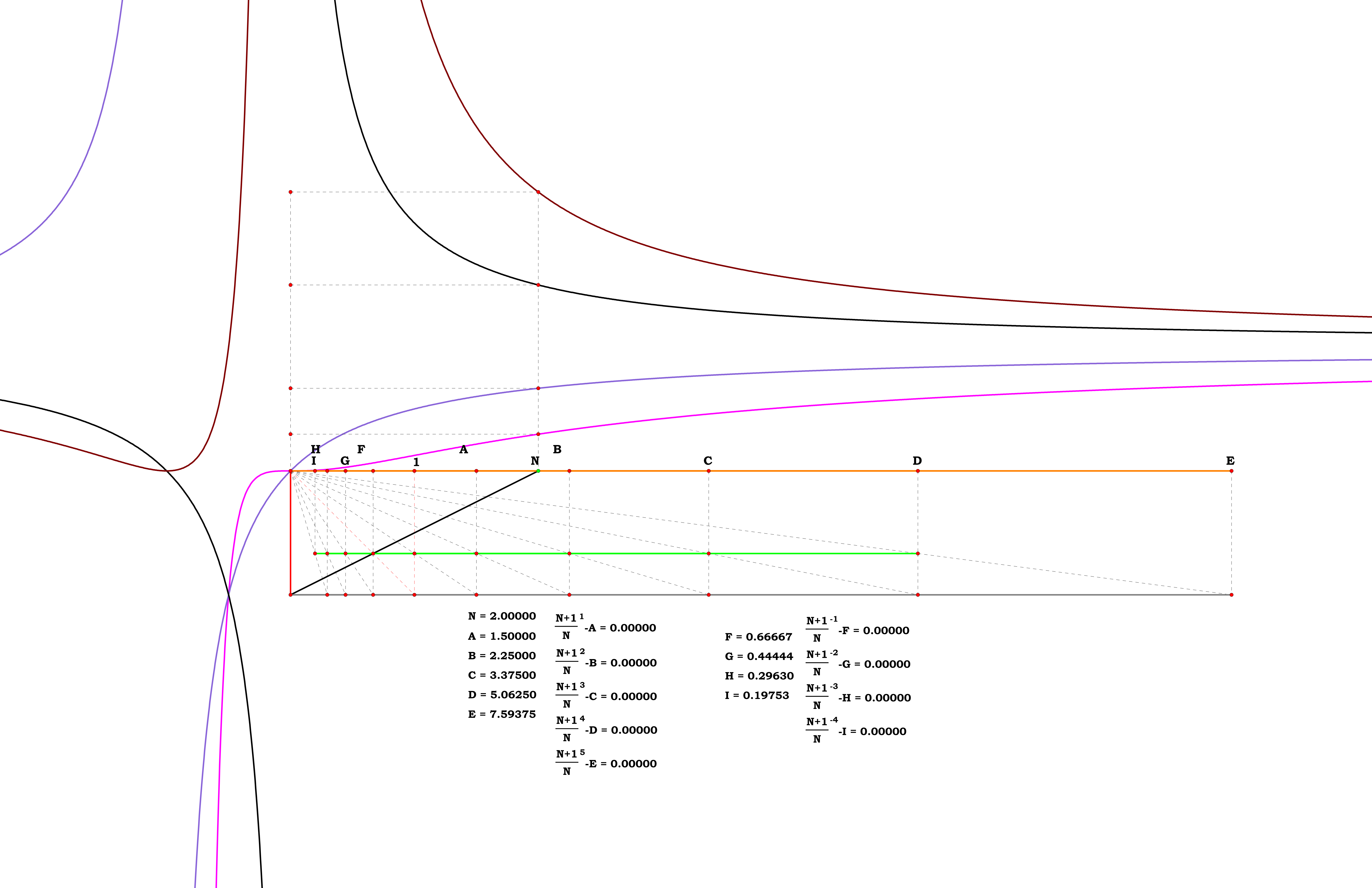
$N_3 \cdot \frac{N_1+N_2\,^{-1}}{N_2} - F = 0.00000$

$N_3 \cdot \frac{N_1+N_2\,^{-2}}{N_2} - G = 0.00000$

$N_3 \cdot \frac{N_1+N_2\,^{-3}}{N_2} - H = 0.00000$

$N_3 \cdot \frac{N_1+N_2\,^{-4}}{N_2} - I = 0.00000$

Zero from top.



N = 2.00000

A = 1.50000

B = 2.25000

C = 3.37500

D = 5.06250

E = 7.59375

$\frac{N+1}{N}^{1}$ -A = 0.00000

$\frac{N+1}{N}^{2}$ -B = 0.00000

$\frac{N+1}{N}^{3}$ -C = 0.00000

$\frac{N+1}{N}^{4}$ -D = 0.00000

$\frac{N+1}{N}^{5}$ -E = 0.00000

F = 0.66667

G = 0.44444

H = 0.29630

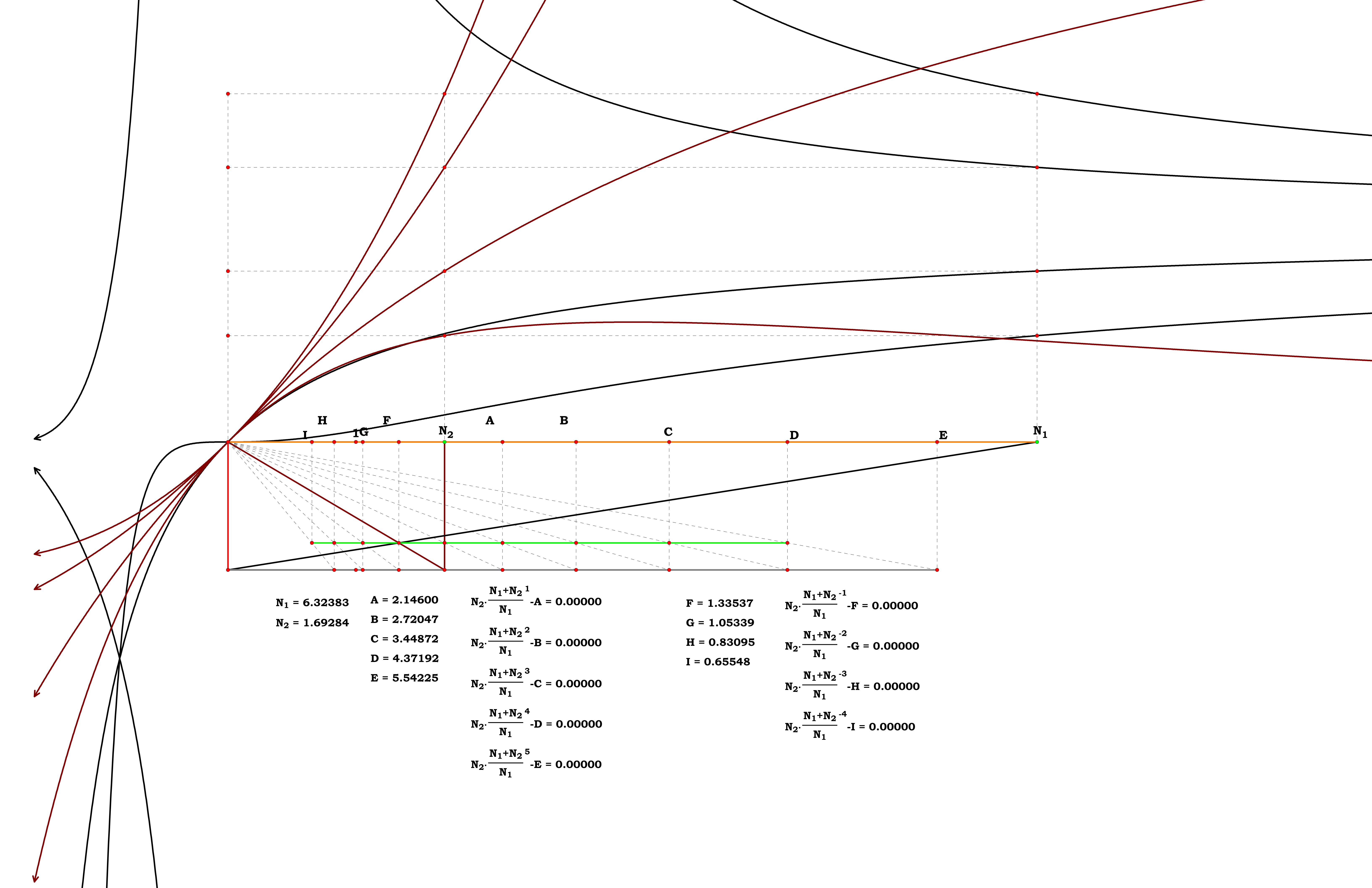
I = 0.19753

$\frac{N+1}{N}^{-1}$ -F = 0.00000

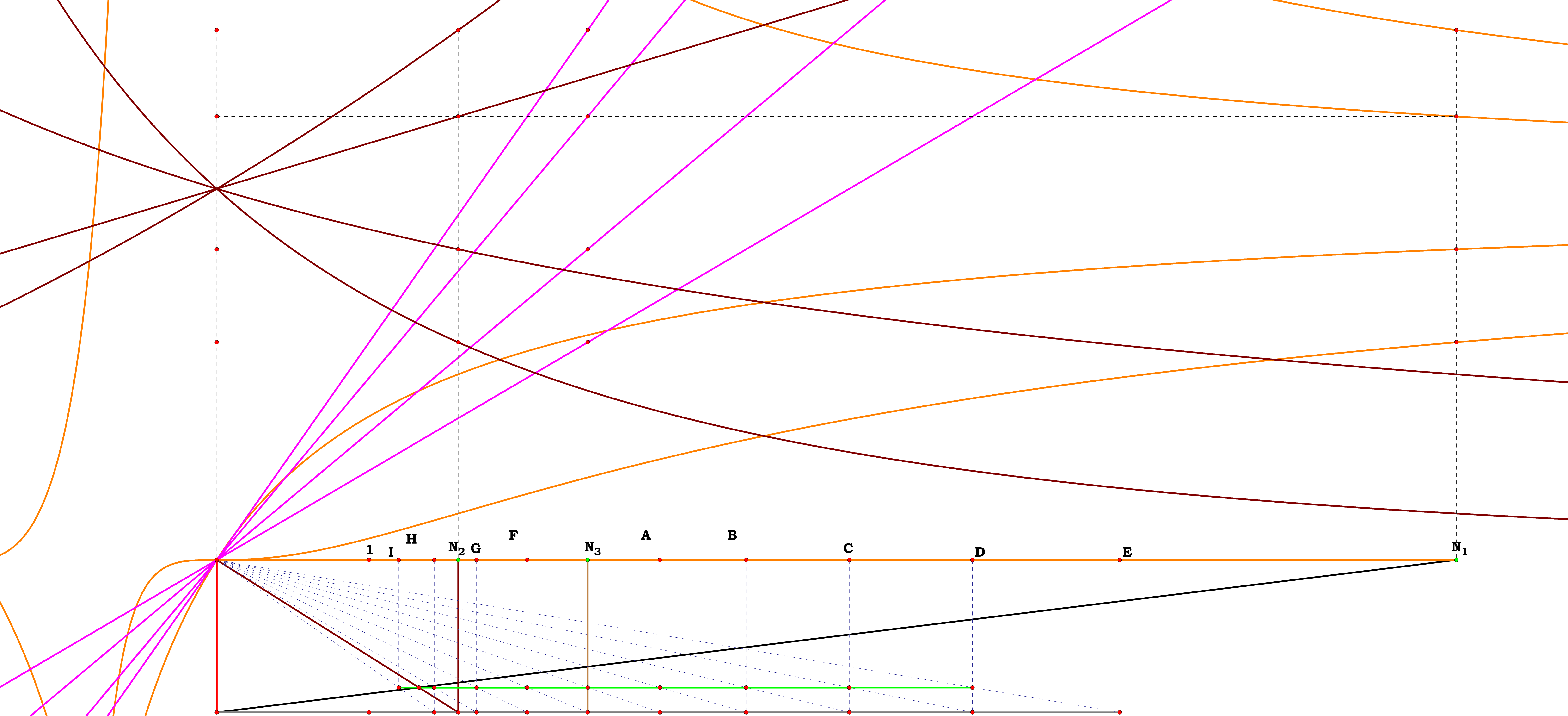
$\frac{N+1}{N}^{-2}$ -G = 0.00000

$\frac{N+1}{N}^{-3}$ -H = 0.00000

$\frac{N+1}{N}^{-4}$ -I = 0.00000



H
F
A
B
I
IG
N_2
C
D
E
N_1
$N_1 = 6.32383$
$N_2 = 1.69284$
A = 2.14600
B = 2.72047
C = 3.44872
D = 4.37192
E = 5.54225
$N_2 \cdot \frac{N_1+N_2}{N_1}^{1}$ -A = 0.00000
$N_2 \cdot \frac{N_1+N_2}{N_1}^{2}$ -B = 0.00000
$N_2 \cdot \frac{N_1+N_2}{N_1}^{3}$ -C = 0.00000
$N_2 \cdot \frac{N_1+N_2}{N_1}^{4}$ -D = 0.00000
$N_2 \cdot \frac{N_1+N_2}{N_1}^{5}$ -E = 0.00000
F = 1.33537
G = 1.05339
H = 0.83095
I = 0.65548
$N_2 \cdot \frac{N_1+N_2}{N_1}^{-1}$ -F = 0.00000
$N_2 \cdot \frac{N_1+N_2}{N_1}^{-2}$ -G = 0.00000
$N_2 \cdot \frac{N_1+N_2}{N_1}^{-3}$ -H = 0.00000
$N_2 \cdot \frac{N_1+N_2}{N_1}^{-4}$ -I = 0.00000



$N_1 = 8.13593$

$N_3 = 2.43410$

$N_2 = 1.58466$

$\frac{N_1+N_2}{N_1} = 1.19477$

A = 2.90820

B = 3.47463

C = 4.15140

D = 4.95998

E = 5.92605

$N_3\cdot\frac{N_1+N_2}{N_1} - A = 0.00000$

$N_3\cdot\frac{N_1+N_2\,^{2}}{N_1} - B = 0.00000$

$N_3\cdot\frac{N_1+N_2\,^{3}}{N_1} - C = 0.00000$

$N_3\cdot\frac{N_1+N_2\,^{4}}{N_1} - D = 0.00000$

$N_3\cdot\frac{N_1+N_2\,^{5}}{N_1} - E = 0.00000$

F = 2.03729

G = 1.70517

H = 1.42719

I = 1.19453

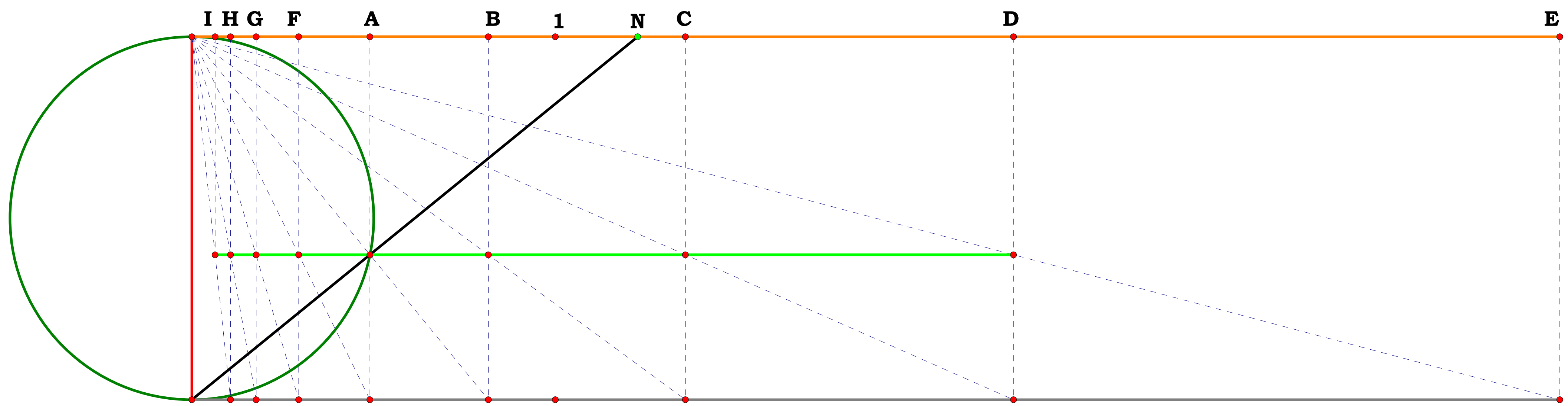
$N_3\cdot\frac{N_1+N_2\,^{-1}}{N_1} - F = 0.00000$

$N_3\cdot\frac{N_1+N_2\,^{-2}}{N_1} - G = 0.00000$

$N_3\cdot\frac{N_1+N_2\,^{-3}}{N_1} - H = 0.00000$

$N_3\cdot\frac{N_1+N_2\,^{-4}}{N_1} - I = 0.00000$

Exponential Series Notebook 3



$$\frac{N}{N^2+1} = 0.48977$$

$$\frac{N^2+1}{N^2} = 1.66488$$

$N = 1.22639$

$A = 0.48977$

$B = 0.81540$

$C = 1.35755$

$D = 2.26016$

$E = 3.76290$

$$\frac{N}{N^2+1}\cdot\frac{N^2+1}{N^2}^{0} - A = 0.00000$$

$$\frac{N}{N^2+1}\cdot\frac{N^2+1}{N^2}^{1} - B = 0.00000$$

$$\frac{N}{N^2+1}\cdot\frac{N^2+1}{N^2}^{2} - C = 0.00000$$

$$\frac{N}{N^2+1}\cdot\frac{N^2+1}{N^2}^{3} - D = 0.00000$$

$$\frac{N}{N^2+1}\cdot\frac{N^2+1}{N^2}^{4} - E = 0.00000$$

$F = 0.29417$

$G = 0.17669$

$H = 0.10613$

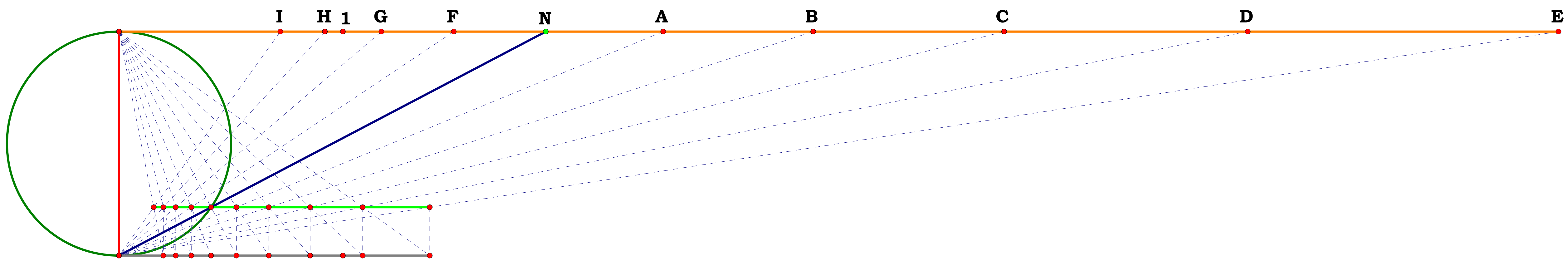
$I = 0.06375$

$$\frac{N}{N^2+1}\cdot\frac{N^2+1}{N^2}^{-1} - F = 0.00000$$

$$\frac{N}{N^2+1}\cdot\frac{N^2+1}{N^2}^{-2} - G = 0.00000$$

$$\frac{N}{N^2+1}\cdot\frac{N^2+1}{N^2}^{-3} - H = 0.00000$$

$$\frac{N}{N^2+1}\cdot\frac{N^2+1}{N^2}^{-4} - I = 0.00000$$



$$\frac{N^2+1}{N^2} = 1.27525$$

$$\frac{N^2+1}{N} = 2.43071$$

$$N+\frac{1}{N} = 2.43071$$

$$N = 1.90607$$

A = 2.43071
B = 3.09976
C = 3.95295
D = 5.04098
E = 6.42849

$$\frac{N^2+1}{N}\cdot{\frac{N^2+1}{N^2}}^{0} - A = 0.00000$$

$$\frac{N^2+1}{N}\cdot{\frac{N^2+1}{N^2}}^{1} - B = 0.00000$$

$$\frac{N^2+1}{N}\cdot{\frac{N^2+1}{N^2}}^{2} - C = 0.00000$$

$$\frac{N^2+1}{N}\cdot{\frac{N^2+1}{N^2}}^{3} - D = 0.00000$$

$$\frac{N^2+1}{N}\cdot{\frac{N^2+1}{N^2}}^{4} - E = 0.00000$$

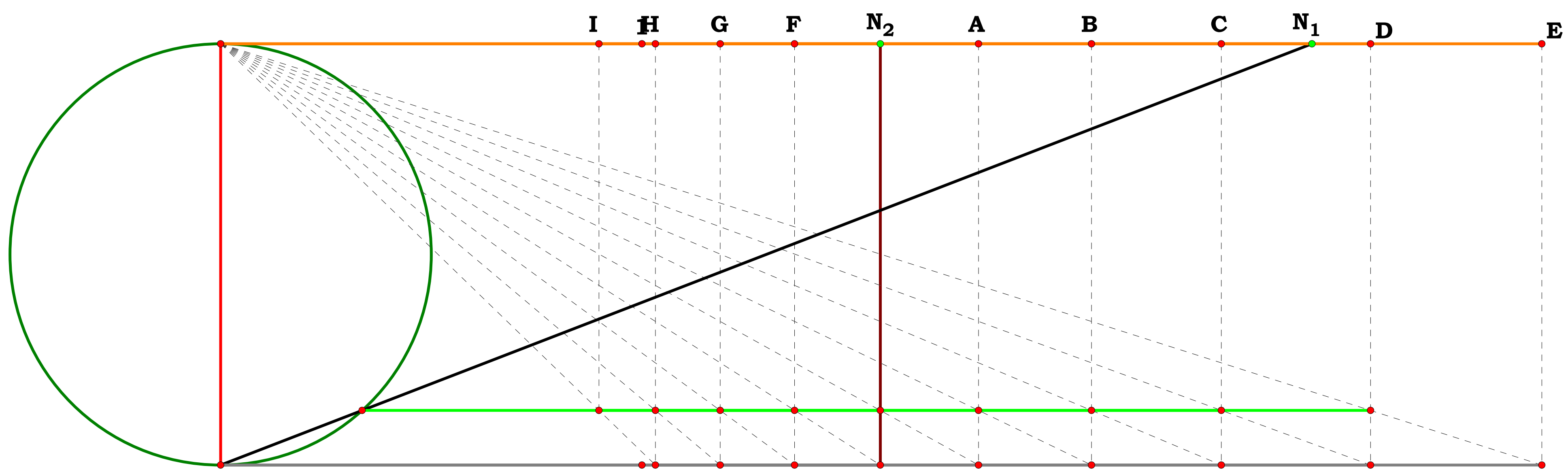
F = 1.49467
G = 1.17207
H = 0.91909
I = 0.72072

$$\frac{N^2+1}{N}\cdot{\frac{N^2+1}{N^2}}^{-2} - F = 0.00000$$

$$\frac{N^2+1}{N}\cdot{\frac{N^2+1}{N^2}}^{-3} - G = 0.00000$$

$$\frac{N^2+1}{N}\cdot{\frac{N^2+1}{N^2}}^{-4} - H = 0.00000$$

$$\frac{N^2+1}{N}\cdot{\frac{N^2+1}{N^2}}^{-5} - I = 0.00000$$



$$\frac{N_1^2+1}{N_1^2} = 1.14908$$

$$\frac{N_2\cdot(N_1^2+1)}{N_1^2} = 1.79864$$

$N_1 = 2.58997$

$N_2 = 1.56529$

A = 1.79864
B = 2.06677
C = 2.37488
D = 2.72892
E = 3.13573

$$\frac{N_2\cdot(N_1^2+1)}{N_1^2}\cdot{\frac{N_1^2+1}{N_1^2}}^{0} - A = 0.00000$$

$$\frac{N_2\cdot(N_1^2+1)}{N_1^2}\cdot{\frac{N_1^2+1}{N_1^2}}^{1} - B = 0.00000$$

$$\frac{N_2\cdot(N_1^2+1)}{N_1^2}\cdot{\frac{N_1^2+1}{N_1^2}}^{2} - C = 0.00000$$

$$\frac{N_2\cdot(N_1^2+1)}{N_1^2}\cdot{\frac{N_1^2+1}{N_1^2}}^{3} - D = 0.00000$$

$$\frac{N_2\cdot(N_1^2+1)}{N_1^2}\cdot{\frac{N_1^2+1}{N_1^2}}^{4} - E = 0.00000$$

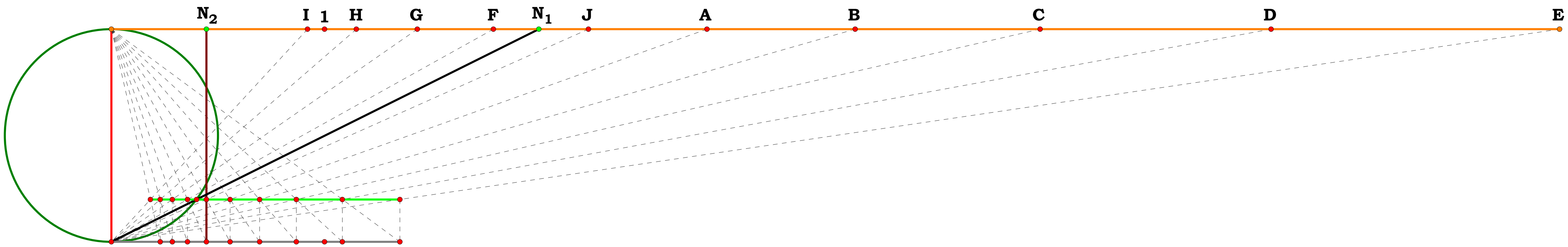
F = 1.36221
G = 1.18549
H = 1.03169
I = 0.89784

$$\frac{N_2\cdot(N_1^2+1)}{N_1^2}\cdot{\frac{N_1^2+1}{N_1^2}}^{-2} - F = 0.00000$$

$$\frac{N_2\cdot(N_1^2+1)}{N_1^2}\cdot{\frac{N_1^2+1}{N_1^2}}^{-3} - G = 0.00000$$

$$\frac{N_2\cdot(N_1^2+1)}{N_1^2}\cdot{\frac{N_1^2+1}{N_1^2}}^{-4} - H = 0.00000$$

$$\frac{N_2\cdot(N_1^2+1)}{N_1^2}\cdot{\frac{N_1^2+1}{N_1^2}}^{-5} - I = 0.00000$$



$N_2\cdot(N_1^2+1) = 2.23722$

$\frac{N_1^2+1}{N_1^2} = 1.24872$

$N_1 = 2.00514$

$N_2 = 0.44561$

A = 2.79366

B = 3.48849

C = 4.35614

D = 5.43960

E = 6.79253

$$(N_2\cdot(N_1^2+1))\cdot{\frac{N_1^2+1}{N_1^2}}^{1} - A = 0.00000$$

$$(N_2\cdot(N_1^2+1))\cdot{\frac{N_1^2+1}{N_1^2}}^{2} - B = 0.00000$$

$$(N_2\cdot(N_1^2+1))\cdot{\frac{N_1^2+1}{N_1^2}}^{3} - C = 0.00000$$

$$(N_2\cdot(N_1^2+1))\cdot{\frac{N_1^2+1}{N_1^2}}^{4} - D = 0.00000$$

$$(N_2\cdot(N_1^2+1))\cdot{\frac{N_1^2+1}{N_1^2}}^{5} - E = 0.00000$$

J = 2.23722

F = 1.79161

G = 1.43476

H = 1.14898

I = 0.92013

$$(N_2\cdot(N_1^2+1))\cdot{\frac{N_1^2+1}{N_1^2}}^{0} - J = 0.00000$$

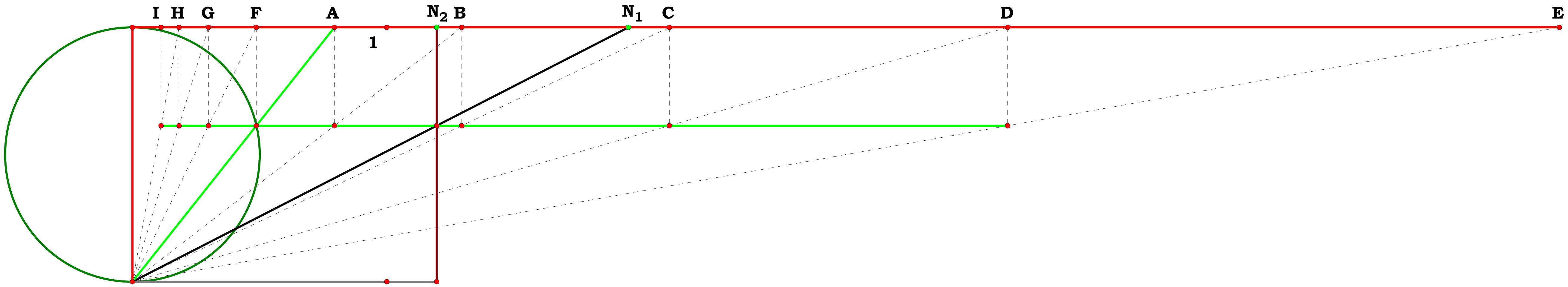
$$(N_2\cdot(N_1^2+1))\cdot{\frac{N_1^2+1}{N_1^2}}^{-1} - F = 0.00000$$

$$(N_2\cdot(N_1^2+1))\cdot{\frac{N_1^2+1}{N_1^2}}^{-2} - G = 0.00000$$

$$(N_2\cdot(N_1^2+1))\cdot{\frac{N_1^2+1}{N_1^2}}^{-3} - H = 0.00000$$

$$(N_2\cdot(N_1^2+1))\cdot{\frac{N_1^2+1}{N_1^2}}^{-4} - I = 0.00000$$

Topic divider



$$\frac{N_1}{N_2} = 1.63024$$

$$\sqrt{\frac{N_1 - N_2}{N_2}} = 0.79388$$

$$N_1 = 1.94939$$

$$N_2 = 1.19577$$

A = 0.79388
B = 1.29421
C = 2.10988
D = 3.43962
E = 5.60741

$$\sqrt{\frac{N_1 - N_2}{N_2}} \cdot \frac{N_1}{N_2}^{0} - A = 0.00000$$

$$\sqrt{\frac{N_1 - N_2}{N_2}} \cdot \frac{N_1}{N_2}^{1} - B = 0.00000$$

$$\sqrt{\frac{N_1 - N_2}{N_2}} \cdot \frac{N_1}{N_2}^{2} - C = 0.00000$$

$$\sqrt{\frac{N_1 - N_2}{N_2}} \cdot \frac{N_1}{N_2}^{3} - D = 0.00000$$

$$\sqrt{\frac{N_1 - N_2}{N_2}} \cdot \frac{N_1}{N_2}^{4} - E = 0.00000$$

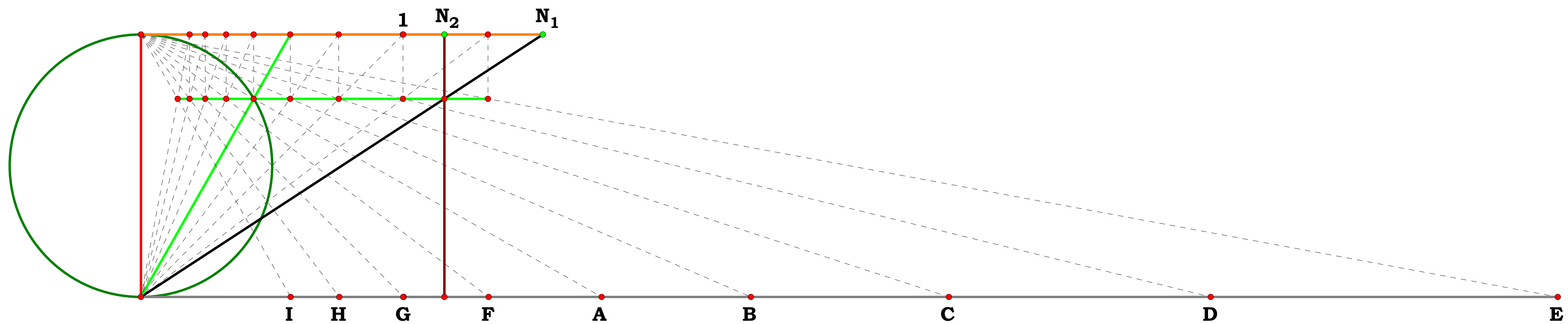
F = 0.48697
G = 0.29871
H = 0.18323
I = 0.11239

$$\sqrt{\frac{N_1 - N_2}{N_2}} \cdot \frac{N_1}{N_2}^{-1} - F = 0.00000$$

$$\sqrt{\frac{N_1 - N_2}{N_2}} \cdot \frac{N_1}{N_2}^{-2} - G = 0.00000$$

$$\sqrt{\frac{N_1 - N_2}{N_2}} \cdot \frac{N_1}{N_2}^{-3} - H = 0.00000$$

$$\sqrt{\frac{N_1 - N_2}{N_2}} \cdot \frac{N_1}{N_2}^{-4} - I = 0.00000$$



$$\sqrt{\frac{N_2}{N_1-N_2}} = 1.75589$$

$$\frac{N_1}{N_2} = 1.32434$$

$N_1 = 1.53175$

$N_2 = 1.15661$

A = 1.75589
B = 2.32540
C = 3.07963
D = 4.07849
E = 5.40133

$$\sqrt{\frac{N_2}{N_1-N_2}} \cdot \frac{N_1}{N_2}^0 - A = 0.00000$$

$$\sqrt{\frac{N_2}{N_1-N_2}} \cdot \frac{N_1}{N_2}^1 - B = 0.00000$$

$$\sqrt{\frac{N_2}{N_1-N_2}} \cdot \frac{N_1}{N_2}^2 - C = 0.00000$$

$$\sqrt{\frac{N_2}{N_1-N_2}} \cdot \frac{N_1}{N_2}^3 - D = 0.00000$$

$$\sqrt{\frac{N_2}{N_1-N_2}} \cdot \frac{N_1}{N_2}^4 - E = 0.00000$$

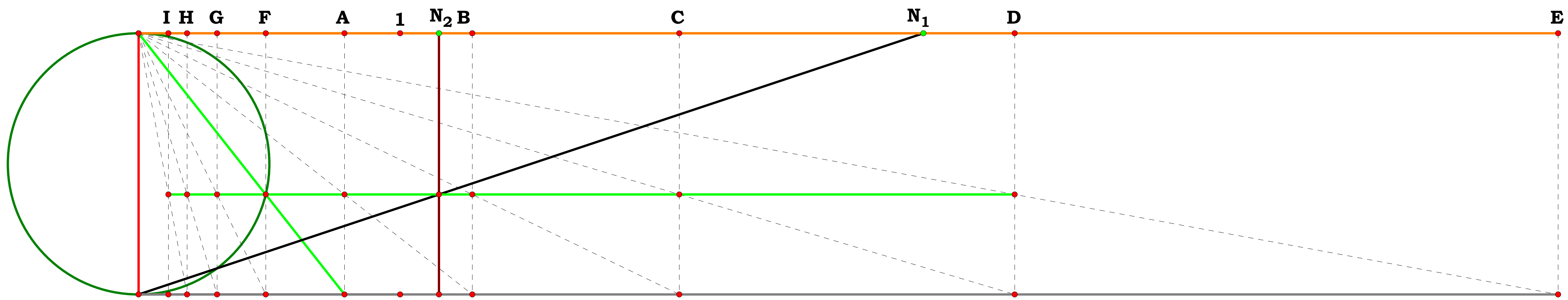
F = 1.32585
G = 1.00114
H = 0.75595
I = 0.57081

$$\sqrt{\frac{N_2}{N_1-N_2}} \cdot \frac{N_1}{N_2}^{-1} - F = 0.00000$$

$$\sqrt{\frac{N_2}{N_1-N_2}} \cdot \frac{N_1}{N_2}^{-2} - G = 0.00000$$

$$\sqrt{\frac{N_2}{N_1-N_2}} \cdot \frac{N_1}{N_2}^{-3} - H = 0.00000$$

$$\sqrt{\frac{N_2}{N_1-N_2}} \cdot \frac{N_1}{N_2}^{-4} - I = 0.00000$$



$$\sqrt{\frac{N_2}{N_1-N_2}} = 0.78754$$

$$\frac{N_1}{N_1-N_2} = 1.62022$$

$N_1 = 3.00000$

$N_2 = 1.14840$

A = 0.78754

B = 1.27600

C = 2.06740

D = 3.34965

E = 5.42718

$$\sqrt{\frac{N_2}{N_1-N_2}} \cdot \frac{N_1}{N_1-N_2}^{0} - A = 0.00000$$

$$\sqrt{\frac{N_2}{N_1-N_2}} \cdot \frac{N_1}{N_1-N_2}^{1} - B = 0.00000$$

$$\sqrt{\frac{N_2}{N_1-N_2}} \cdot \frac{N_1}{N_1-N_2}^{2} - C = 0.00000$$

$$\sqrt{\frac{N_2}{N_1-N_2}} \cdot \frac{N_1}{N_1-N_2}^{3} - D = 0.00000$$

$$\sqrt{\frac{N_2}{N_1-N_2}} \cdot \frac{N_1}{N_1-N_2}^{4} - E = 0.00000$$

F = 0.48607

G = 0.30000

H = 0.18516

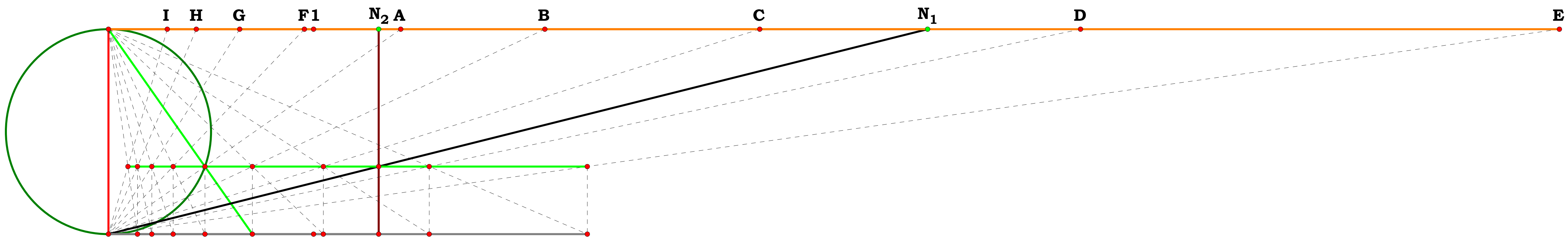
I = 0.11428

$$\sqrt{\frac{N_2}{N_1-N_2}} \cdot \frac{N_1}{N_1-N_2}^{-1} - F = 0.00000$$

$$\sqrt{\frac{N_2}{N_1-N_2}} \cdot \frac{N_1}{N_1-N_2}^{-2} - G = 0.00000$$

$$\sqrt{\frac{N_2}{N_1-N_2}} \cdot \frac{N_1}{N_1-N_2}^{-3} - H = 0.00000$$

$$\sqrt{\frac{N_2}{N_1-N_2}} \cdot \frac{N_1}{N_1-N_2}^{-4} - I = 0.00000$$



$$\sqrt{\frac{N_1-N_2}{N_2}} = 1.42482$$

$$\frac{N_1}{N_1-N_2} = 1.49258$$

$N_1 = 3.99177$

$N_2 = 1.31737$

A = 1.42482
B = 2.12666
C = 3.17422
D = 4.73779
E = 7.07155

$$\sqrt{\frac{N_1-N_2}{N_2}} \cdot \frac{N_1}{N_1-N_2}^{0} - A = 0.00000$$

$$\sqrt{\frac{N_1-N_2}{N_2}} \cdot \frac{N_1}{N_1-N_2}^{1} - B = 0.00000$$

$$\sqrt{\frac{N_1-N_2}{N_2}} \cdot \frac{N_1}{N_1-N_2}^{2} - C = 0.00000$$

$$\sqrt{\frac{N_1-N_2}{N_2}} \cdot \frac{N_1}{N_1-N_2}^{3} - D = 0.00000$$

$$\sqrt{\frac{N_1-N_2}{N_2}} \cdot \frac{N_1}{N_1-N_2}^{4} - E = 0.00000$$

F = 0.95460
G = 0.63956
H = 0.42849
I = 0.28708

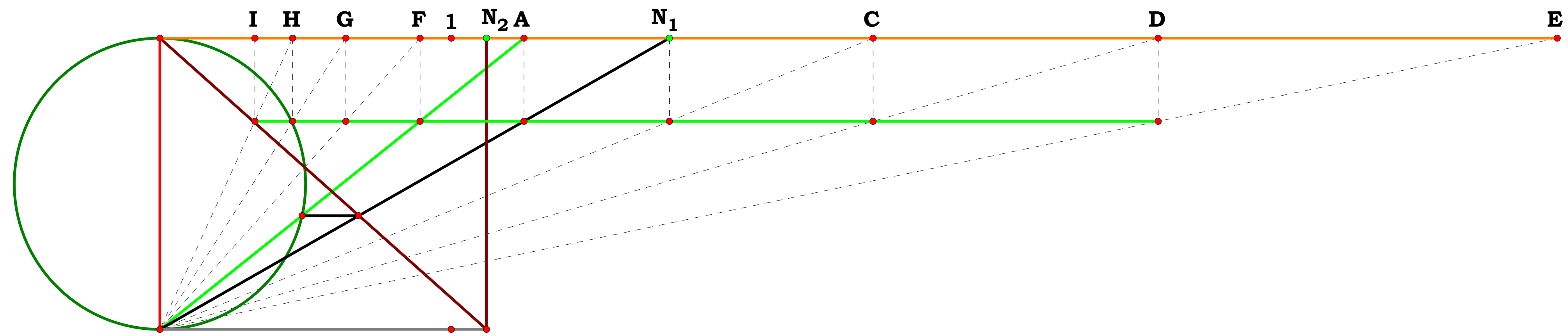
$$\sqrt{\frac{N_1-N_2}{N_2}} \cdot \frac{N_1}{N_1-N_2}^{-1} - F = 0.00000$$

$$\sqrt{\frac{N_1-N_2}{N_2}} \cdot \frac{N_1}{N_1-N_2}^{-2} - G = 0.00000$$

$$\sqrt{\frac{N_1-N_2}{N_2}} \cdot \frac{N_1}{N_1-N_2}^{-3} - H = 0.00000$$

$$\sqrt{\frac{N_1-N_2}{N_2}} \cdot \frac{N_1}{N_1-N_2}^{-4} - I = 0.00000$$

Topic Divider.



$\sqrt{\frac{N_1}{N_2}} = 1.24930$

$\sqrt{N_1 \cdot N_2} = 1.39967$

$N_2 = 1.12036$

$A = 1.24930$

$N_1 = 1.74861$

$C = 2.44748$

$D = 3.42566$

$E = 4.79479$

$\sqrt{\frac{N_1}{N_2}} \cdot \sqrt{N_1 \cdot N_2}^0 - A = 0.00000$

$\sqrt{\frac{N_1}{N_2}} \cdot \sqrt{N_1 \cdot N_2}^1 - N_1 = 0.00000$

$\sqrt{\frac{N_1}{N_2}} \cdot \sqrt{N_1 \cdot N_2}^2 - C = 0.00000$

$\sqrt{\frac{N_1}{N_2}} \cdot \sqrt{N_1 \cdot N_2}^3 - D = 0.00000$

$\sqrt{\frac{N_1}{N_2}} \cdot \sqrt{N_1 \cdot N_2}^4 - E = 0.00000$

$F = 0.89257$

$G = 0.63770$

$H = 0.45561$

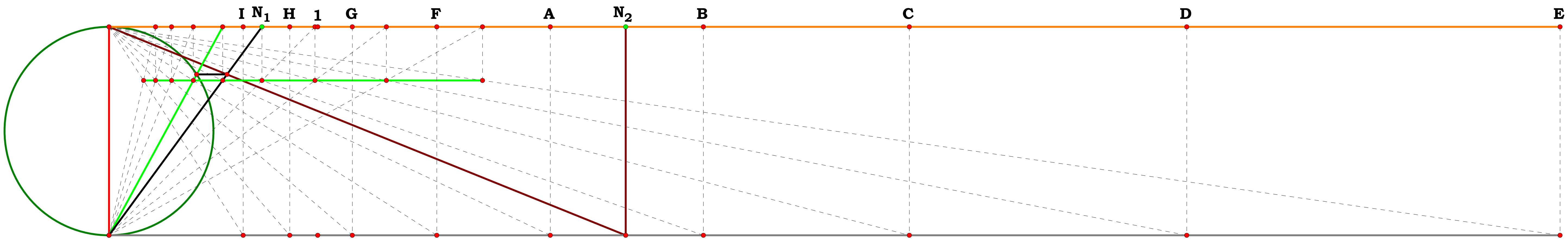
$I = 0.32551$

$\sqrt{\frac{N_1}{N_2}} \cdot \sqrt{N_1 \cdot N_2}^{-1} - F = 0.00000$

$\sqrt{\frac{N_1}{N_2}} \cdot \sqrt{N_1 \cdot N_2}^{-2} - G = 0.00000$

$\sqrt{\frac{N_1}{N_2}} \cdot \sqrt{N_1 \cdot N_2}^{-3} - H = 0.00000$

$\sqrt{\frac{N_1}{N_2}} \cdot \sqrt{N_1 \cdot N_2}^{-4} - I = 0.00000$



$$\frac{N_1}{\sqrt{N_1 \cdot N_2 - 1}} = 2.11403$$

$$\sqrt{N_1 \cdot N_2} = 1.34658$$

$N_1 = 0.73268$

$N_2 = 2.47486$

$A = 2.11403$

$B = 2.84670$

$C = 3.83331$

$D = 5.16185$

$E = 6.95084$

$$\frac{N_1}{\sqrt{N_1 \cdot N_2 - 1}} \cdot \sqrt{N_1 \cdot N_2}^0 - A = 0.00000$$

$$\frac{N_1}{\sqrt{N_1 \cdot N_2 - 1}} \cdot \sqrt{N_1 \cdot N_2}^1 - B = 0.00000$$

$$\frac{N_1}{\sqrt{N_1 \cdot N_2 - 1}} \cdot \sqrt{N_1 \cdot N_2}^2 - C = 0.00000$$

$$\frac{N_1}{\sqrt{N_1 \cdot N_2 - 1}} \cdot \sqrt{N_1 \cdot N_2}^3 - D = 0.00000$$

$$\frac{N_1}{\sqrt{N_1 \cdot N_2 - 1}} \cdot \sqrt{N_1 \cdot N_2}^4 - E = 0.00000$$

$F = 1.56992$

$G = 1.16586$

$H = 0.86580$

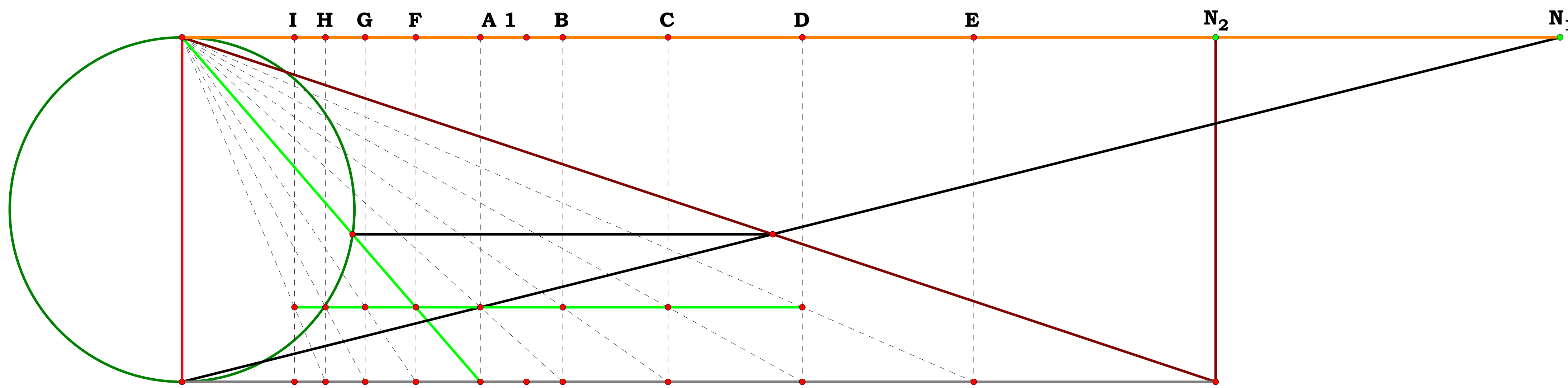
$I = 0.64296$

$$\frac{N_1}{\sqrt{N_1 \cdot N_2 - 1}} \cdot \sqrt{N_1 \cdot N_2}^{-1} - F = 0.00000$$

$$\frac{N_1}{\sqrt{N_1 \cdot N_2 - 1}} \cdot \sqrt{N_1 \cdot N_2}^{-2} - G = 0.00000$$

$$\frac{N_1}{\sqrt{N_1 \cdot N_2 - 1}} \cdot \sqrt{N_1 \cdot N_2}^{-3} - H = 0.00000$$

$$\frac{N_1}{\sqrt{N_1 \cdot N_2 - 1}} \cdot \sqrt{N_1 \cdot N_2}^{-4} - I = 0.00000$$



$$\sqrt{\frac{N_2}{N_1}} = 0.86603$$

$$\frac{B}{A} = 1.27633$$

$N_1 = 4.00000$

$N_2 = 3.00000$

$$\frac{N_2}{N_1} = 0.75000$$

A = 0.86603
B = 1.10534
C = 1.41078
D = 1.80063
E = 2.29820

$$\sqrt{\frac{N_2}{N_1}} - A = 0.00000$$

$$\sqrt{\frac{N_2}{N_1}} \cdot \frac{B}{A} - B = 0.00000$$

$$\sqrt{\frac{N_2}{N_1}} \cdot \frac{B^2}{A} - C = 0.00000$$

$$\sqrt{\frac{N_2}{N_1}} \cdot \frac{B^3}{A} - D = 0.00000$$

$$\sqrt{\frac{N_2}{N_1}} \cdot \frac{B^4}{A} - E = 0.00000$$

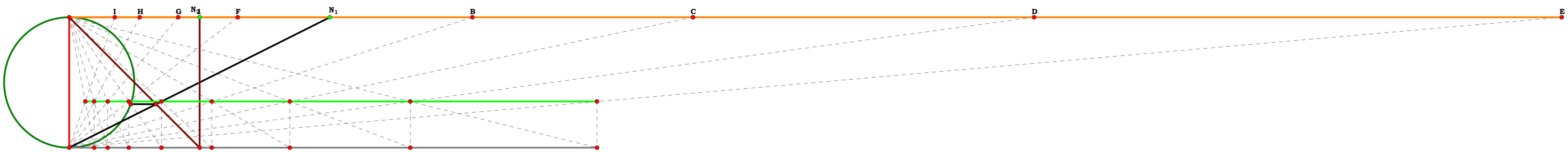
F = 0.67853
G = 0.53162
H = 0.41652
I = 0.32634

$$\sqrt{\frac{N_2}{N_1}} \cdot \frac{B^{-1}}{A} - F = 0.00000$$

$$\sqrt{\frac{N_2}{N_1}} \cdot \frac{B^{-2}}{A} - G = 0.00000$$

$$\sqrt{\frac{N_2}{N_1}} \cdot \frac{B^{-3}}{A} - H = 0.00000$$

$$\sqrt{\frac{N_2}{N_1}} \cdot \frac{B^{-4}}{A} - I = 0.00000$$



$\frac{C}{B} = 1.54692$

$\frac{D}{C} = 1.54692$

$\sqrt{2} = 1.41421$

$N_1 = 2.00000$

$N_2 = 1.00000$

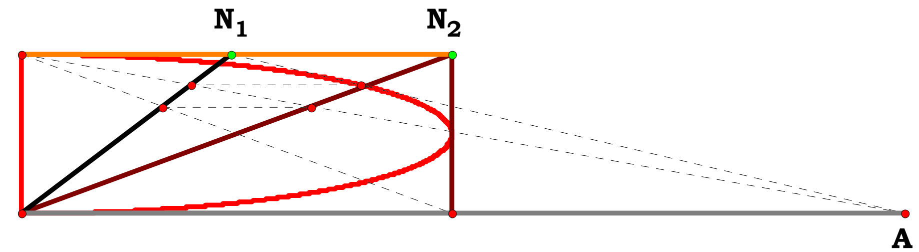
B = 3.09384
C = 4.78591
D = 7.40341
E = 11.45247
F = 1.29289
G = 0.83579
H = 0.54029
I = 0.34927

$AB := 1$

$N_1 := 3.31672$

$N_2 := 2.53931$

From any point N_1 draw the tangent to the ellipse N_2. Or given the square N_2 divide it by N_1.

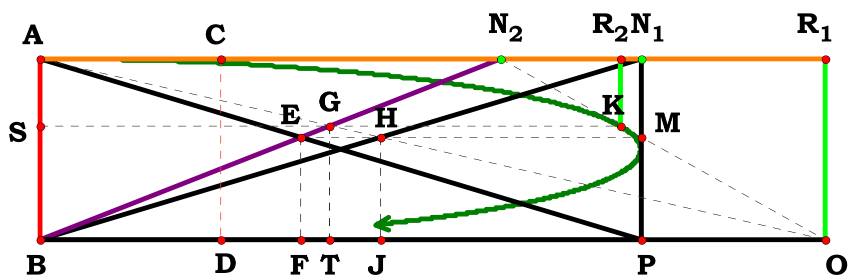


Although I wrote this up in The Curve of the Equation, let me do it again, from a different starting point, pointing out other relationships. Not to mention, simplified and that I will make N_1 the ellipse.

$N_1 = 1.32088$

$N_2 = 2.71076$ $\qquad \dfrac{N_2^2}{N_1} - A = 0.00000$

$A = 5.56312$



$N_1 = 3.31672$

$N_2 = 2.53931$

$R_1 = 4.33214$

$R_2 = 3.20184$

One can see that there is a number of pathways, starting from N_1 by which to construct the figure and it is independent of any second variable. For example, I can use the operational tail of N_1 and take any point H on it. From H, I can go to either M or E. Or I can take N_1 and any N_2 and find everything, which is what I will be doing here. Each path one takes will, naturally, produce a both a logical and an analogical path to the same conclusion.

$$BF := \frac{N_1 \cdot N_2}{N_1 + N_2} \qquad EF := \frac{BF}{N_2} \qquad BJ := N_1 \cdot EF \qquad BO := \frac{BJ}{1 - EF} \qquad R_1 := BO$$

$$BT := \frac{BO \cdot N_2}{BO + N_2} \qquad GT := \frac{BT}{N_2} \qquad GK := BO \cdot (1 - GT) \qquad SK := GK + BT \qquad R_2 := SK$$

$$R_1 = 4.332134 \qquad R_2 = 3.20184$$

$$R_1 - \frac{N_1^{\,2}}{N_2} = 0 \qquad R_2 - \frac{2 \cdot N_1^{\,2} \cdot N_2}{N_1^{\,2} + N_2^{\,2}} = 0$$

Therefore, even though, given only the two points, the logic gives us a means of drawing the figure for the solution.

Now, if given N_2 and R_2 what would N_1 be? Given just 2 points, or any two values, it would not be possible, however, since we have the equation, we can now draw it to find the figure.

$$N_1 - \frac{N_2 \cdot \sqrt{R_2 \cdot \left(2 \cdot N_2 - R_2\right)}}{2 \cdot N_2 - R_2} = 0$$

$N_1 = 3.59613$

$N_2 = 2.51727$

$2 \cdot N_2 = 5.03454$ $B = 5.03454$

$(2 \cdot N_2) - N_1 = 1.43841$ $C = 1.43841$

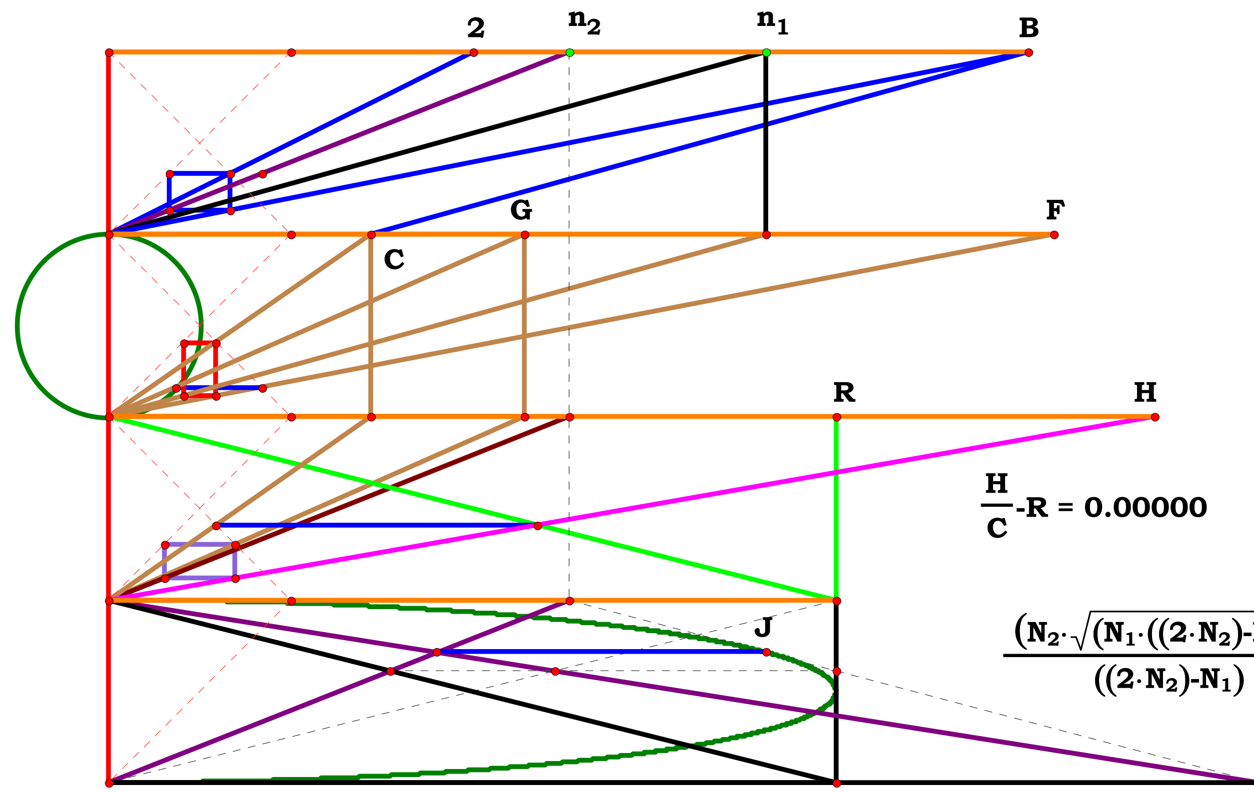
$N_1 \cdot ((2 \cdot N_2) - N_1) = 5.17272$ $F = 5.17272$

$\sqrt{(N_1 \cdot ((2 \cdot N_2) - N_1))} = 2.27436$ $G = 2.27436$

$N_2 \cdot \sqrt{(N_1 \cdot ((2 \cdot N_2) - N_1))} = 5.72519$ $H = 5.72519$

$\dfrac{N_2 \cdot \sqrt{N_1 \cdot (2 \cdot N_2 - N_1)}}{2 \cdot N_2 - N_1} = 3.98021$ $R = 3.98021$

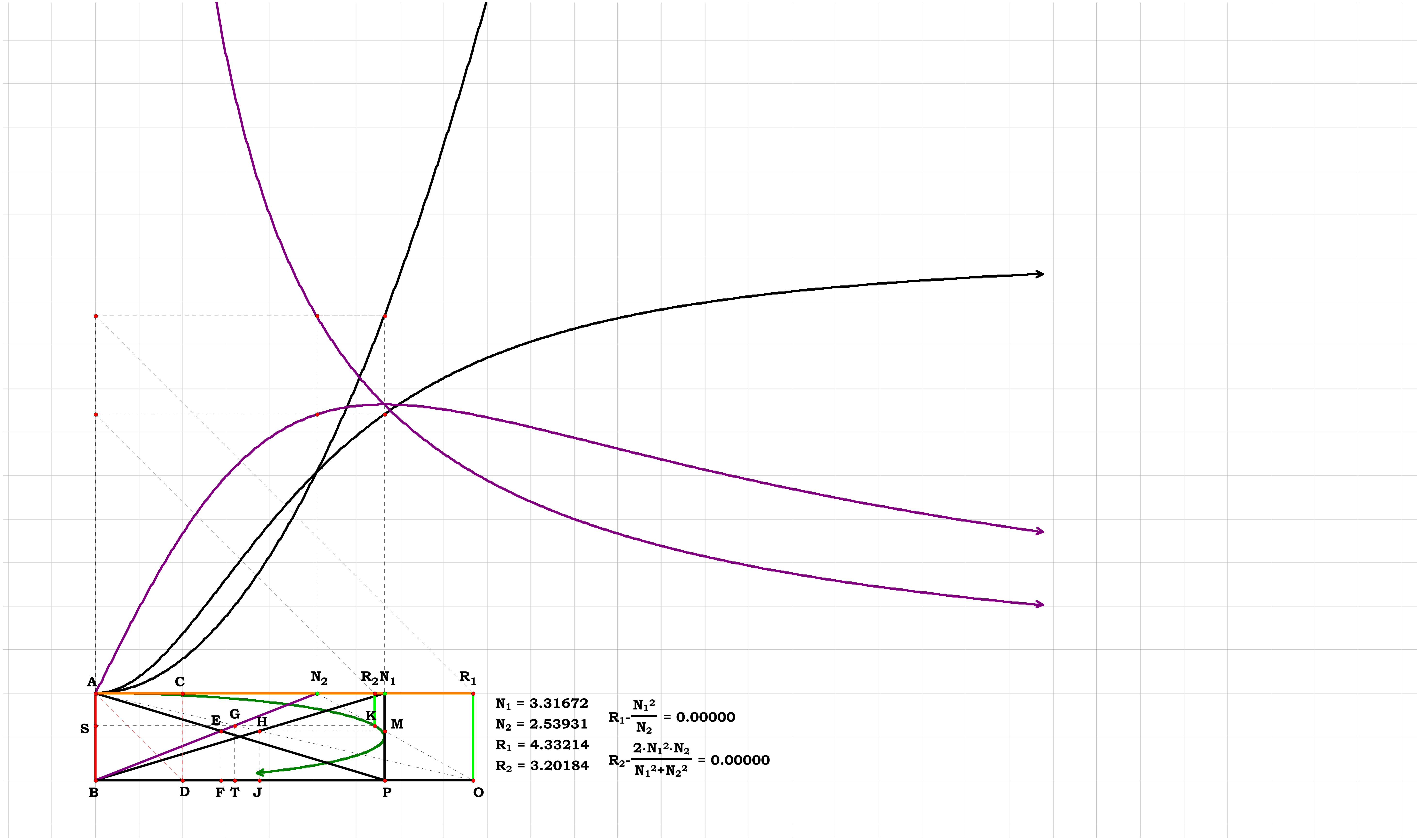
$J - N_1 = 0.00000$ $J = 3.59613$



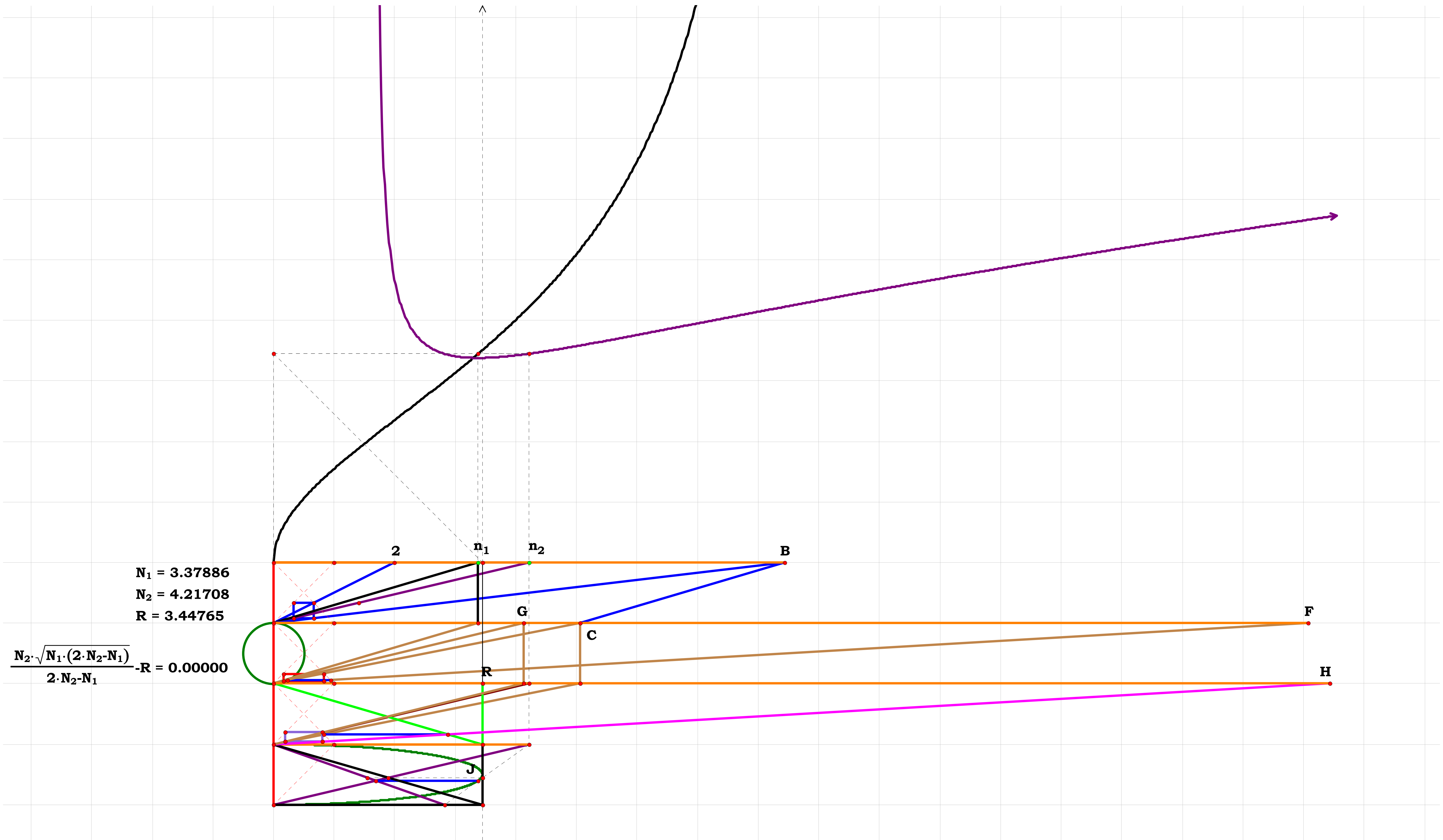
$\dfrac{H}{C} - R = 0.00000$

$\dfrac{(N_2 \cdot \sqrt{(N_1 \cdot ((2 \cdot N_2) - N_1))})}{((2 \cdot N_2) - N_1)} - R = 0.00000$

Therefore, any point, on any circle or ellipse, may be espressed as a ratio between the two dimensions of a plane.
Both an ellipse and a circle are two-dimensional linear functions, one can say that it is the loci of such and such points; in either case, it is not *a line*. Every segment is of one-dimension, or linear.



A
C
N_2
R_2
N_1
R_1
S
E
G
H
K
M
B
D
F
T
J
P
O
$N_1 = 3.31672$
$N_2 = 2.53931$
$R_1 = 4.33214$
$R_2 = 3.20184$
$R_1 - \frac{N_1^2}{N_2} = 0.00000$
$R_2 - \frac{2 \cdot N_1^2 \cdot N_2}{N_1^2 + N_2^2} = 0.00000$



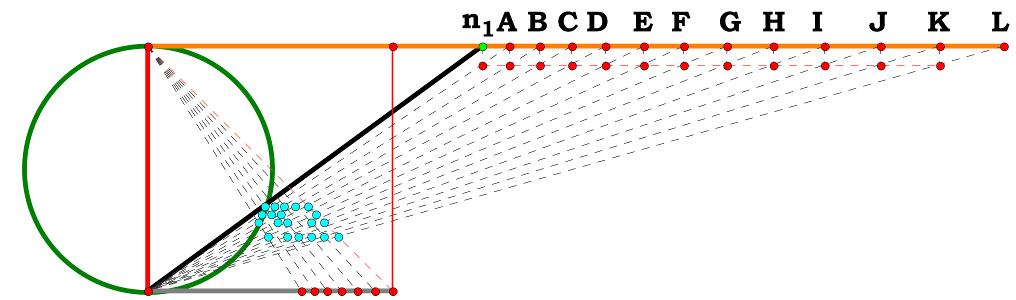
2
n_1
n_2
B
$N_1 = 3.37886$
$N_2 = 4.21708$
R = 3.44765
G
F
C
$\frac{N_2 \cdot \sqrt{N_1 \cdot (2 \cdot N_2 - N_1)}}{2 \cdot N_2 - N_1} - R = 0.00000$
R
H
J

Simple Geometric Series.

During my random excursion into textbooks, I came across a statement by one author that exponential notation was not demonstrable, or abstractable from geometry. However, when I read that statement I reached a different conclusion, that the author could not draw his way out of a paper bag. It really does not take that much playing with basic geometric tools to discover a wealth of figures by which to develop geometric series. I will start with a simple root figure and add a bit of recursion. One will note that they can do a figure demonstrating both so called positive exponential series and negative with the same figure, or in short, the whole of basic exponential notation.

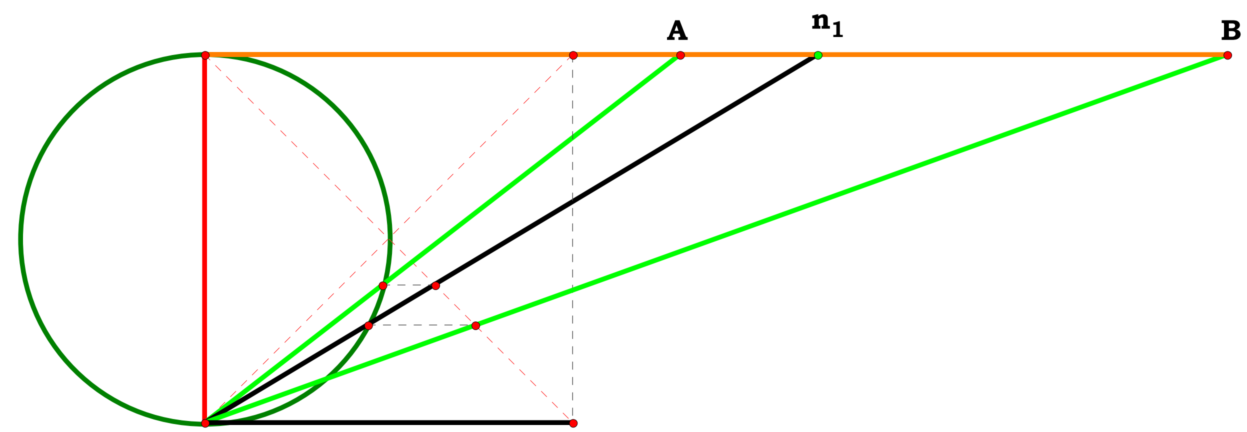
A = 1.47803	$N_1^{1.25}$-A = 0.00000
B = 1.59816	$N_1^{1.5}$-B = 0.00000
C = 1.72805	$N_1^{1.75}$-C = 0.00000
D = 1.86850	N_1^{2}-D = 0.00000
E = 2.02036	$N_1^{2.25}$-E = 0.00000
F = 2.18457	$N_1^{2.5}$-F = 0.00000
G = 2.36212	$N_1^{2.75}$-G = 0.00000
H = 2.55410	N_1^{3}-H = 0.00000
I = 2.76169	$N_1^{3.25}$-I = 0.00000
J = 2.98615	$N_1^{3.5}$-J = 0.00000
K = 3.22885	$N_1^{3.75}$-K = 0.00000
L = 3.49128	N_1^{4}-L = 0.00000

N_1 = 1.36693



N_1 = 1.66534

A = 1.29048	$\sqrt{N_1}$ = 1.29048	$\sqrt{N_1}$-A = 0.00000
B = 2.77337	N_1^2 = 2.77337	N_1^2-B = 0.00000



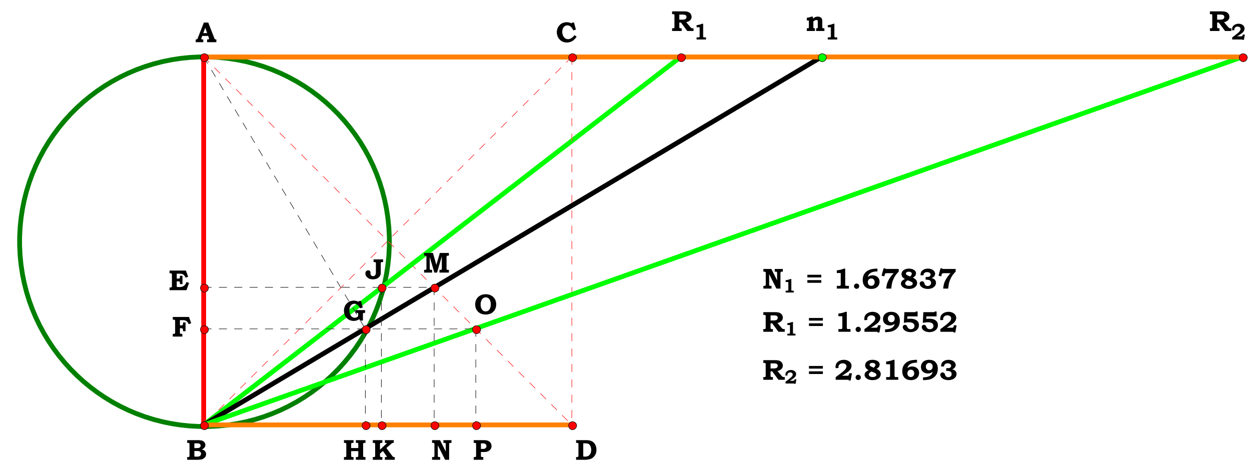
One can see that one of the operational tails can produce two results using the operational tail of the unit and the units circular function or circle for short.

The basic figure, where the circle is added to the unit example, can be understood as the pair of the unit and the primary unit function traditionally called a circle. Or, again, one can view the circle as the operational tail of the primitive linear function.

Each of the results also have the same option for development, thus one can, using the area of the operational tails, simply draw to their hearts content simple geometric series. And, if we make the unit a veriable or second input, one can start to complicate things. Then by tossing a function on the second, well one can generate all the head work they want. One can see, by the dual splitting of our options, why the results is a factor of 2. This may be a hint as to how to formulate series using a function on the unit and after the first split, switching to the unit for further recursions, or whatever one likes.

$AB := 1$

$N_1 := 1.67837$



$$MN := \frac{1}{N_1 + 1} \qquad EJ := \sqrt{MN \cdot (1 - MN)}$$

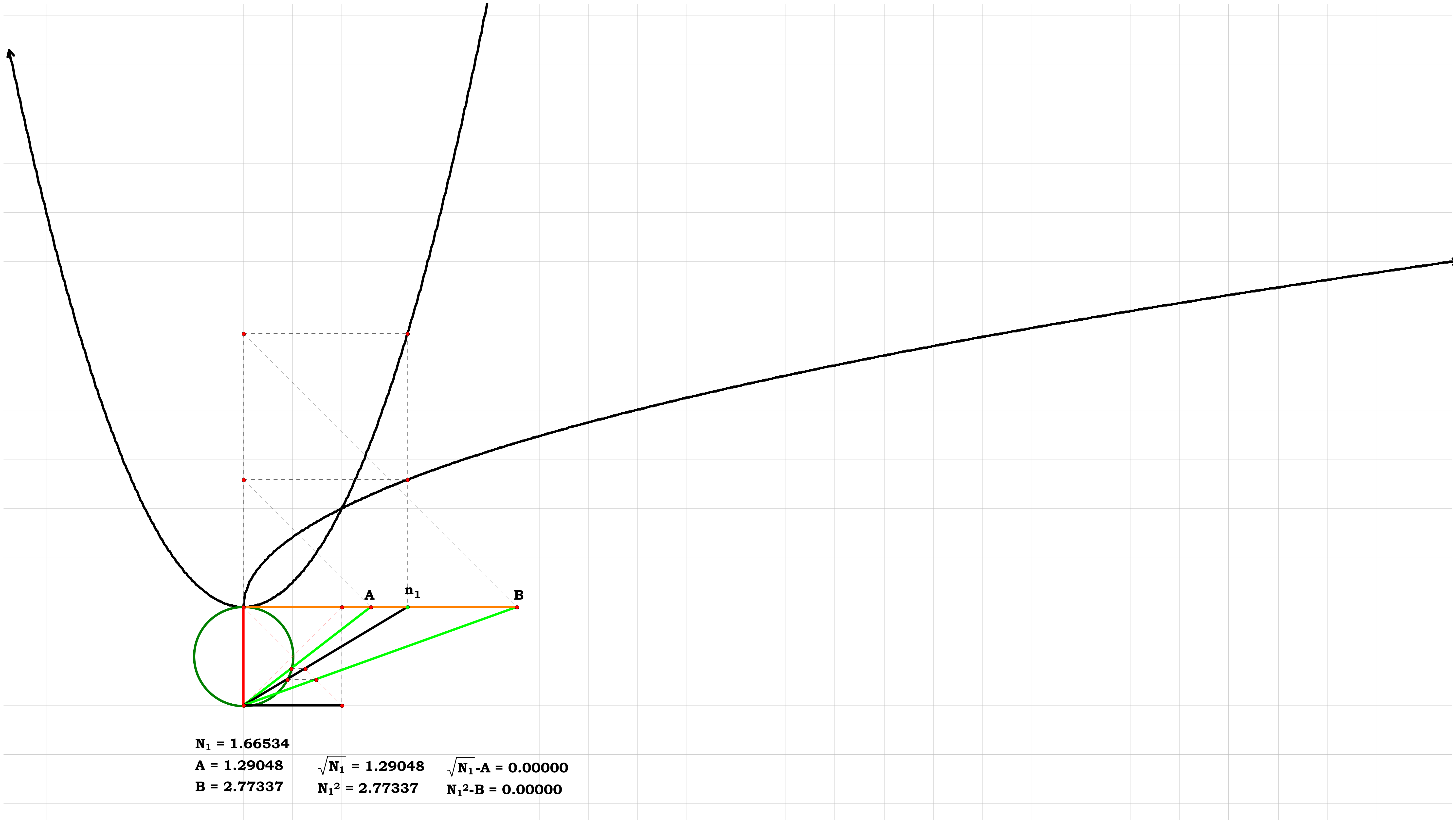
$$R_1 := \frac{EJ}{MN} \qquad R_1 - \sqrt{N_1} = 0$$

$$BN_1 := \sqrt{AB^2 + N_1^{\,2}} \qquad BG := \frac{AB^2}{BN_1}$$

$$FG := \frac{N_1 \cdot BG}{BN_1} \qquad GH := \frac{FG}{N_1}$$

$$R_2 := \frac{1 - GH}{GH} \qquad N_1^{\,2} - R_2 = 0$$

Thus, one should realize, as soon as one is given the circle, they are given a linear function which automatically implies the importation of the so called Pythagorean Theorem. Thus, the so called theorem is just one results of what was given as soon as one had taken the original function. The fact of the matter is, one need not even mention it as it is one of a group of results. And, as one is given the circle, what is implied is, when one realize that the unit tail in the figure can be used to extrapolate a second variable, that the ellipse is a given also, or again, a geometric tool is that tool which produces one, and only one, difference between two points, or again, one in which is covered by the concept of complete induction of the unit. The whole train of thought which leads to discovering what a circle is, is not possible when one is thinking arithmetically, thought has to evolve to become inclusive of proportional reasoning which brings in multiplication and division, or again, the root functions. Proportion is a given as soon as one starts using the circle or the primitive unit function.


A
n1
B
N1 = 1.66534
A = 1.29048
B = 2.77337
√N1 = 1.29048
N1² = 2.77337
√N1-A = 0.00000
N1²-B = 0.00000

$AB := 1$

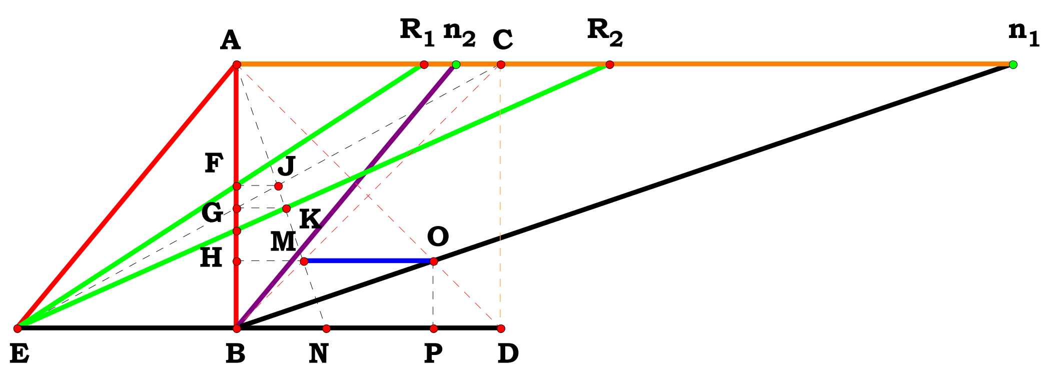
$N_1 := 2.93308$

$N_2 := .82839$

Sketch from 062412

One will notice that this is a geometric series which uses a second variable to deterine the point from which to project the series from. One may also notice, the vanishing point for the series, as shown in the second figure remains at 0 no matter what value one sets for either variable. One can manually adjust the second veriable in order to produce any number of proportionals within a given distance which means that a controlling structure to do exponential series can be plugged into the figure, if one knew what that plugin is.

$N_1 = 2.93308$
$N_2 = 0.82839$
$R_1 = 0.70843$
$R_2 = 1.41157$



$$BP := \frac{N_1}{N_1+1} \qquad AH := BP \qquad HM := 1 - AH \qquad BN := \frac{HM}{AH}$$

$$BE := N_2 \qquad BG := \frac{N_2}{N_2+1} \qquad AG := 1 - BG \qquad GK := BN \cdot AG$$

$$R_2 := \frac{BE + GK}{BG} - N_2 \qquad R_2 = 1.411568 \qquad R_2 - \frac{N_1 \cdot N_2 + 1}{N_1 \cdot N_2} = 0$$

$$BF := \frac{N_2 + BN}{N_2 + 1 + BN} \qquad R_1 := \frac{BE}{BF} - N_2 \qquad R_1 = 0.708432$$

$$R_1 - \frac{N_1 \cdot N_2}{N_1 \cdot N_2 + 1} = 0 \qquad R_1 - R_2^{-1} = 0$$

A^2-B = 0.00000
(A·B)-C = 0.00000
B^2-D = 0.00000
(B·C)-E = 0.00000

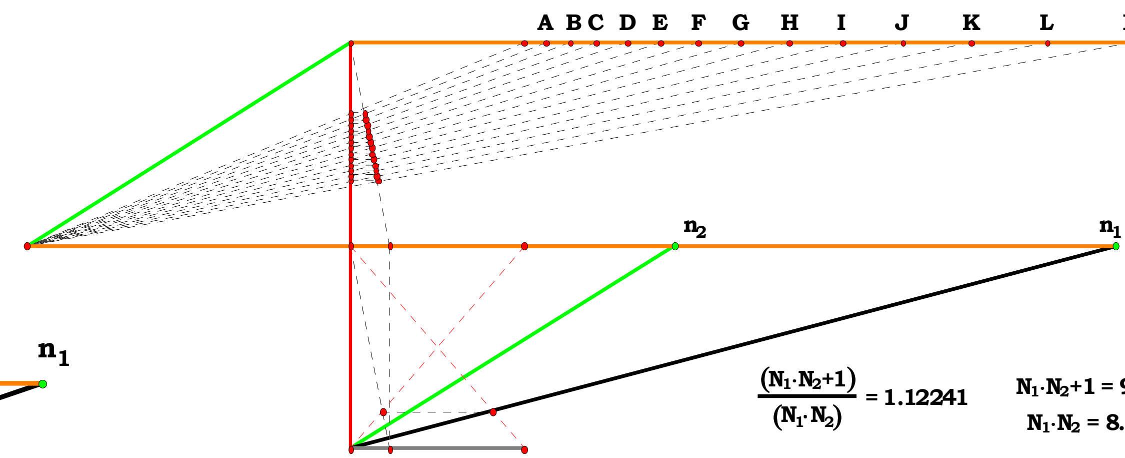
C^2-F = 0.00000
(C·D)-G = 0.00000
D^2-H = 0.00000
(D·E)-I = 0.00000

E^2-J = 0.00000
(E·F)-K = 0.00000
F^2-L = 0.00000
(F·G)-M = 0.00000

$\frac{N_1 \cdot N_2+1^{1}}{N_1 \cdot N_2}$-A = 0.00000
$\frac{(N_1 \cdot N_2+1)^{2}}{(N_1 \cdot N_2)}$-B = 0.00000
$\frac{(N_1 \cdot N_2+1)^{3}}{(N_1 \cdot N_2)}$-C = 0.00000
$\frac{(N_1 \cdot N_2+1)^{4}}{(N_1 \cdot N_2)}$-D = 0.00000

$\frac{(N_1 \cdot N_2+1)^{5}}{(N_1 \cdot N_2)}$-E = 0.00000
$\frac{(N_1 \cdot N_2+1)^{6}}{(N_1 \cdot N_2)}$-F = 0.00000
$\frac{(N_1 \cdot N_2+1)^{7}}{(N_1 \cdot N_2)}$-G = 0.00000
$\frac{(N_1 \cdot N_2+1)^{8}}{(N_1 \cdot N_2)}$-H = 0.00000

$\frac{(N_1 \cdot N_2+1)^{9}}{(N_1 \cdot N_2)}$-I = 0.00000
$\frac{(N_1 \cdot N_2+1)^{10}}{(N_1 \cdot N_2)}$-J = 0.00000
$\frac{(N_1 \cdot N_2+1)^{11}}{(N_1 \cdot N_2)}$-K = 0.00000
$\frac{(N_1 \cdot N_2+1)^{12}}{(N_1 \cdot N_2)}$-L = 0.00000
$\frac{(N_1 \cdot N_2+1)^{13}}{(N_1 \cdot N_2)}$-M = 0.00000



$\frac{(N_1 \cdot N_2+1)}{(N_1 \cdot N_2)} = 1.12241$

$N_1 \cdot N_2+1 = 9.16907$
$N_1 \cdot N_2 = 8.16907$

A^3-C = 0.00000
B^3-F = 0.00000
C^3-I = 0.00000
D^3-L = 0.00000

$N_1 = 4.39883$
$N_2 = 1.85710$

A = 1.12241
B = 1.25981
C = 1.41403
D = 1.58712
E = 1.78141

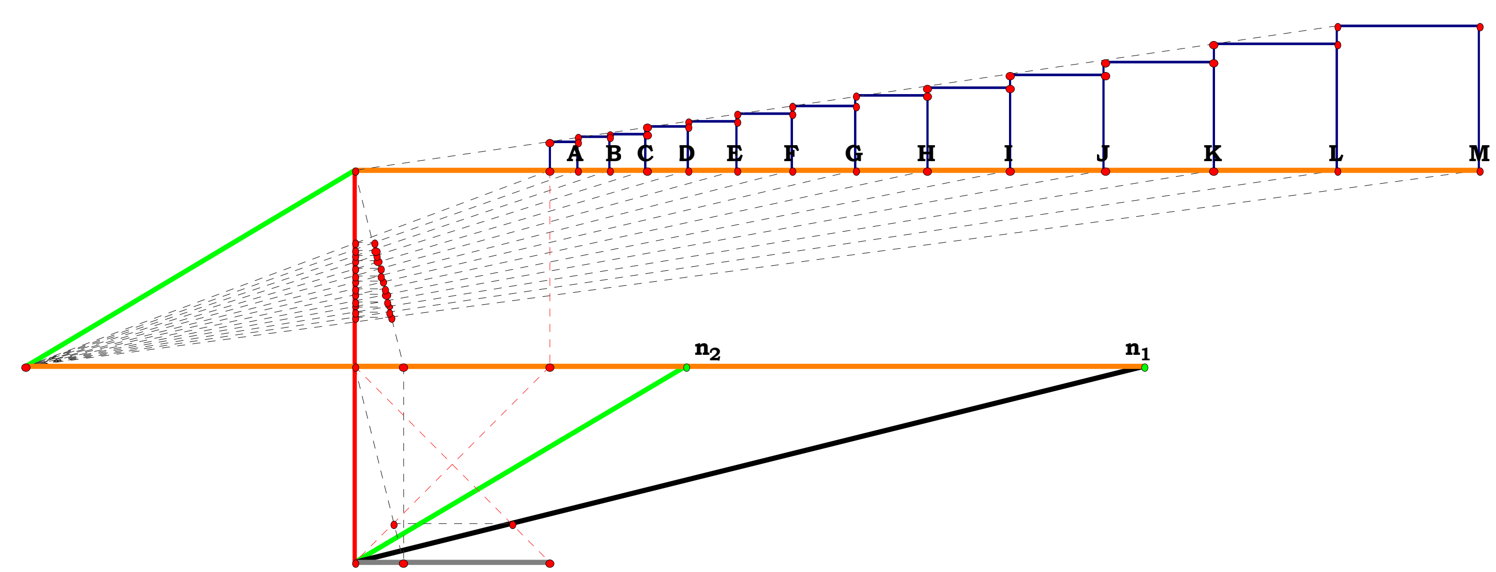
F = 1.99947
G = 2.24424
H = 2.51896
I = 2.82731

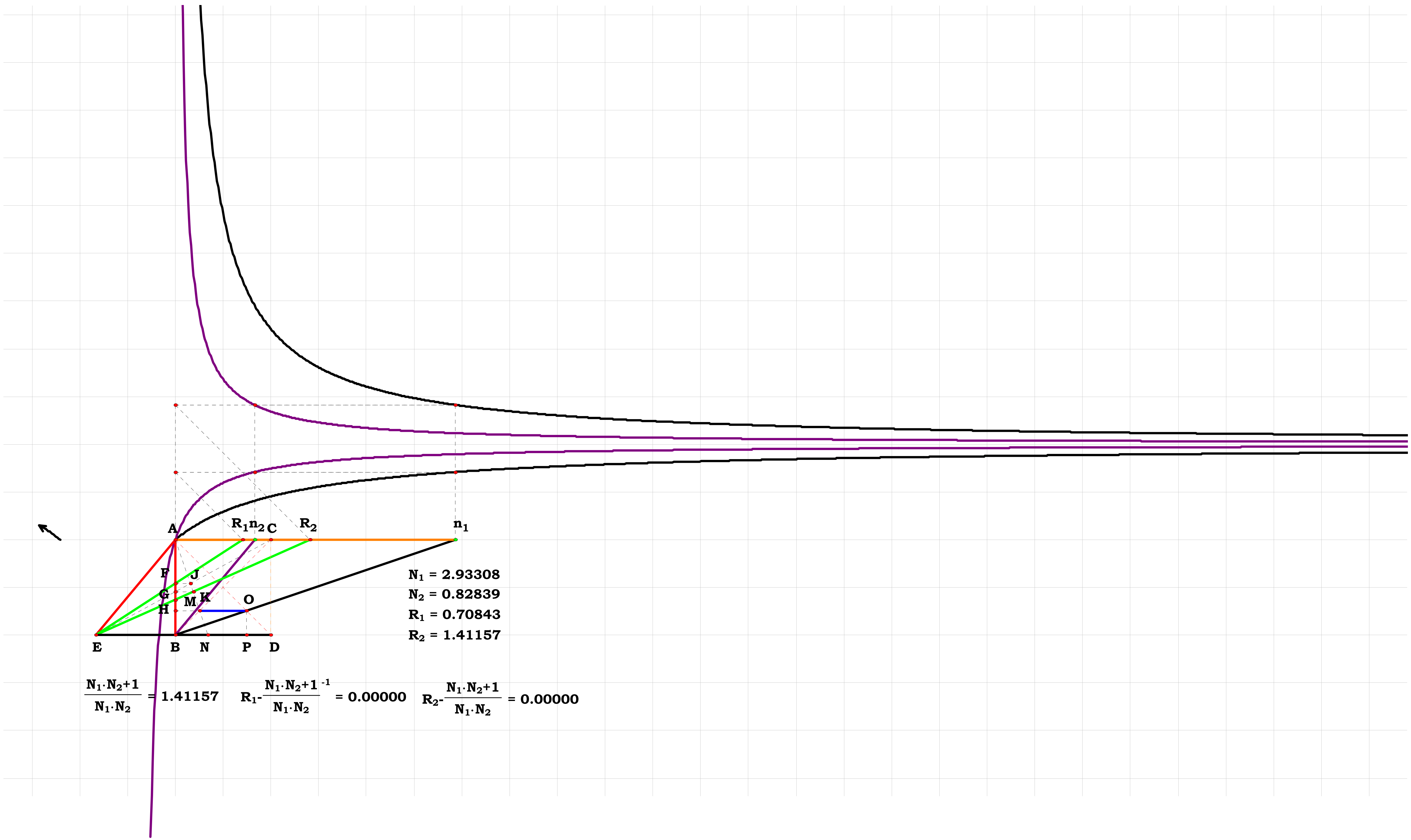
J = 3.17341
K = 3.56188
L = 3.99790
M = 4.48729

A^2 = 1.25981
A·B = 1.41403
B^2 = 1.58712
B·C = 1.78141

C^2 = 1.99947
C·D = 2.24424
D^2 = 2.51896
D·E = 2.82731

E^2 = 3.17341
E·F = 3.56188
F^2 = 3.99790
F·G = 4.48729

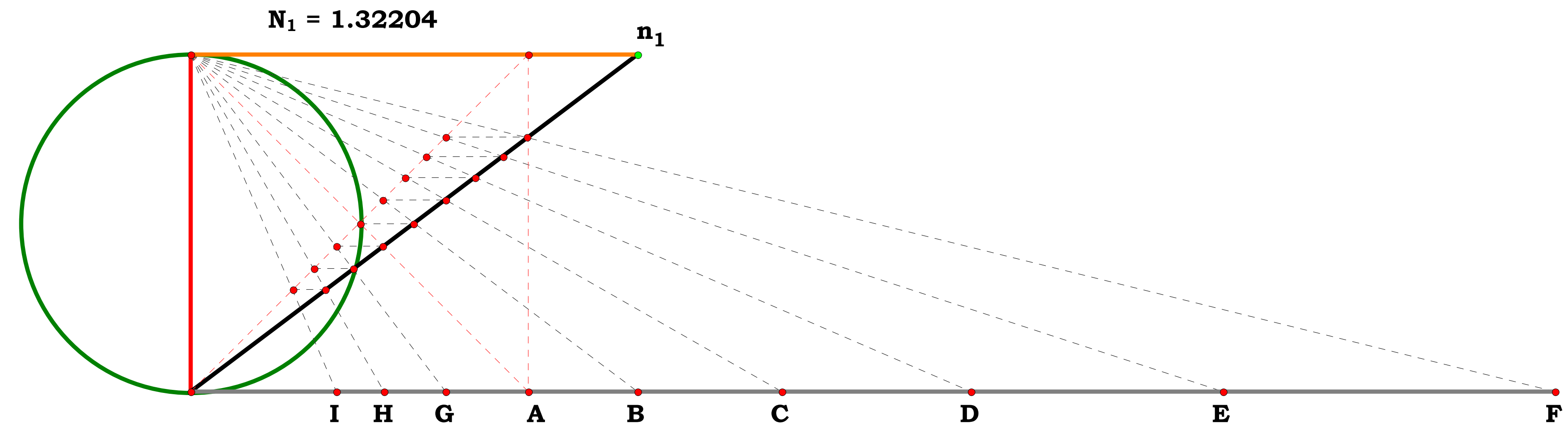



A
R1
n2
C
R2
n1
F
J
G
M
K
O
H
E
B
N
P
D
N1 = 2.93308
N2 = 0.82839
R1 = 0.70843
R2 = 1.41157
(N1·N2+1)/(N1·N2) = 1.41157
R1-((N1·N2+1)/(N1·N2))^-1 = 0.00000
R2-(N1·N2+1)/(N1·N2) = 0.00000

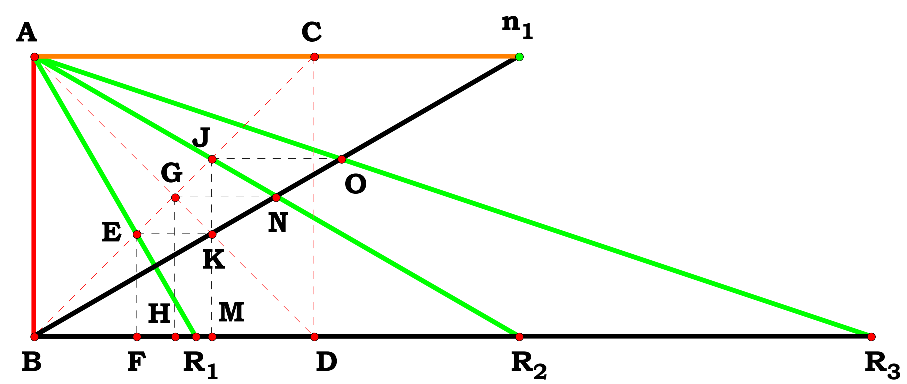
072211-1

Just another easily constructable exponential series. However, one can add this plate to the previous one using each point on this as the second variable in that plate.

A = 1.00000	N_1^{0}-A = 0.00000
B = 1.32204	N_1^{1}-B = 0.00000
C = 1.74778	N_1^{2}-C = 0.00000
D = 2.31062	N_1^{3}-D = 0.00000
E = 3.05473	N_1^{4}-E = 0.00000
F = 4.03846	N_1^{5}-F = 0.00000
G = 0.75641	N_1^{-1}-G = 0.00000
H = 0.57216	N_1^{-2}-H = 0.00000
I = 0.43278	N_1^{-3}-I = 0.00000



N_1 = 1.72698
R_1 = 0.57905
R_2 = 1.72698
R_3 = 2.98245



$AB := 1$

$N_1 := 1.72698$

$KM := \dfrac{1}{N_1 + 1} \qquad BM := \dfrac{N_1}{N_1 + 1}$

$R_1 := \dfrac{KM}{BM} \qquad R_1 = 0.579046$

$R_1 - \dfrac{1}{N_1} = 0 \qquad R_1 - N_1^{\,-1} = 0$

$BD := AB \qquad BD - N_1^{\,0} = 0 \qquad GH := \dfrac{AB}{2}$

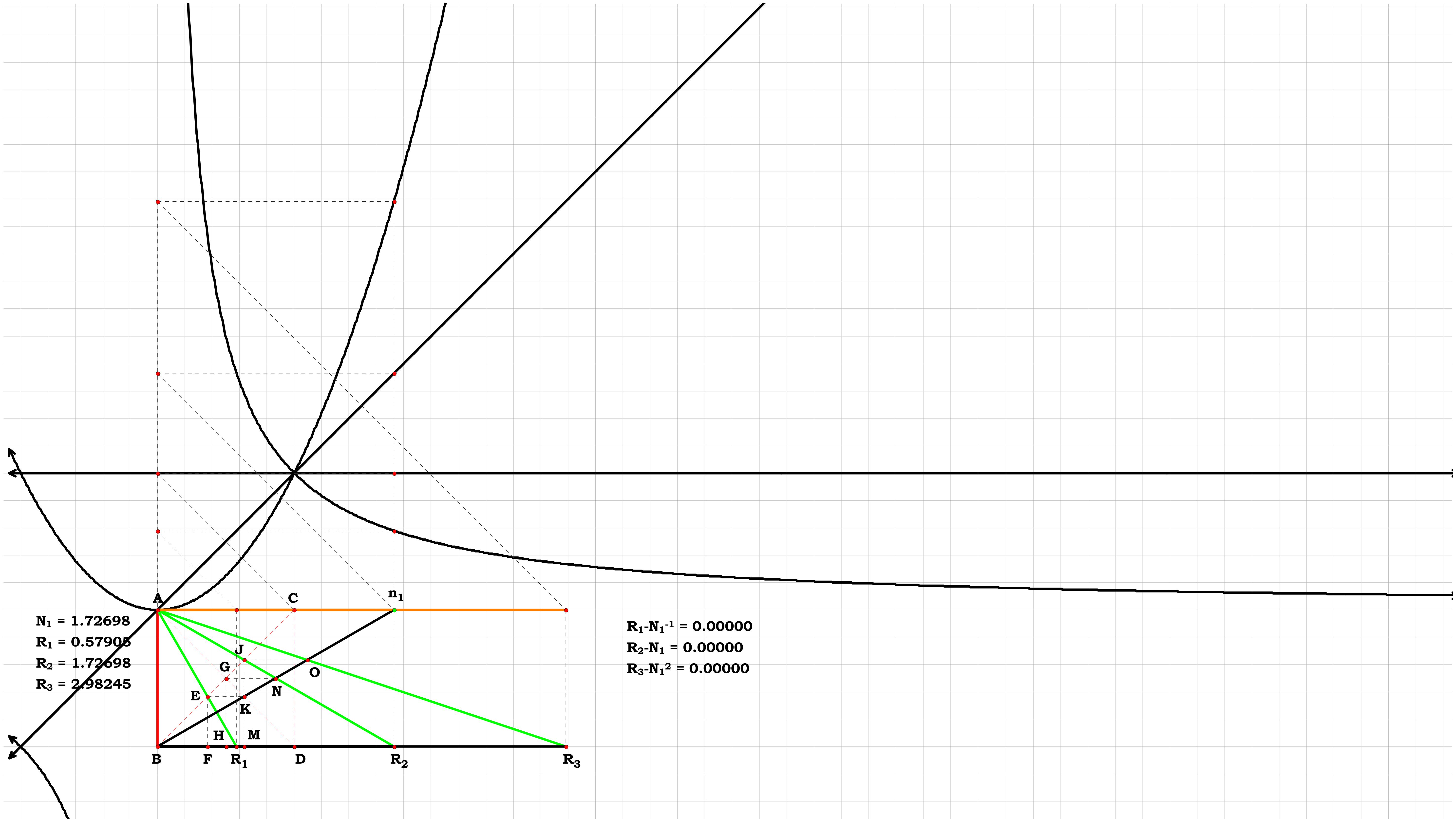
$R_2 := \dfrac{N_1 \cdot GH}{GH} \qquad R_2 - N_1 = 0 \qquad R_2 - N_1^{\,1} = 0$

$JM := BM \qquad R_3 := \dfrac{N_1 \cdot JM}{KM} \qquad R_3 = 2.98246$

$R_3 - N_1^{\,2} = 0$

One might notice, no matter where N_1 is, AR_1 will always be perpendicular to BN_1, or again, their intersection will always be on the circomference of a circle.

And thus we have four values in a geometric series. One may note, that if I was constructing, which I did for the temple, an arithmetic series, I would use AB, instead of AC to walk the series.



A
C
n_1
N_1 = 1.72698
R_1 = 0.57905
R_2 = 1.72698
R_3 = 2.98245
J
G
O
N
E
K
H
M
B
F
R_1
D
R_2
R_3
R_1-N_1^{-1} = 0.00000
R_2-N_1 = 0.00000
R_3-N_1^2 = 0.00000

072211-2

$AB := 1$

$N_1 := 2.13284$

$N_2 := 3.17169$

$AF := \dfrac{AB}{2}$

$BM := N_1 \cdot AF \qquad BT := N_2 \cdot AF$

$R_2 := \dfrac{BM}{AF} \qquad R_3 := \dfrac{BT}{AF}$

$R_2 = 2.13284 \qquad R_3 = 3.17169$

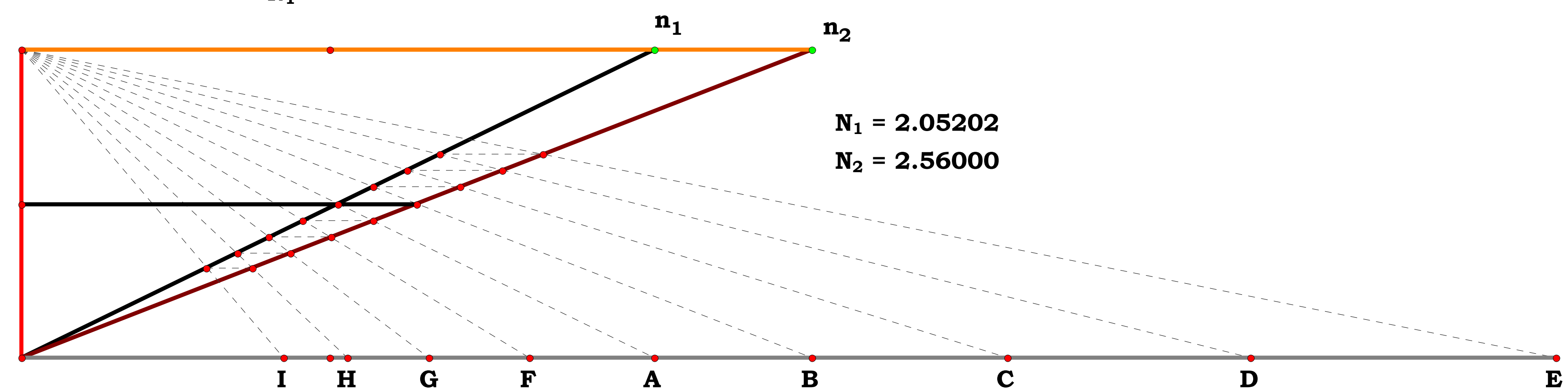
$HJ := \dfrac{R_2}{N_2 + R_2} \qquad BJ := N_1 \cdot HJ$

$R_1 := \dfrac{BJ}{AB - HJ} \qquad NP := \dfrac{R_3}{R_3 + N_1}$

$BV := N_2 \cdot NP \qquad R_4 := \dfrac{BV}{AB - NP}$

$R_1 = 1.434253 \qquad R_4 = 4.716536$

A = 2.05202	$\frac{N_2^{0}}{N_1^{-1}} = 2.05202$	F = 1.64485	$\frac{N_2^{-1}}{N_1^{-2}} = 1.64485$	$A - \frac{N_2^{0}}{N_1^{-1}} = 0.00000$	$F - \frac{N_2^{-1}}{N_1^{-2}} = 0.00000$
B = 2.56000	$\frac{N_2^{1}}{N_1^{0}} = 2.56000$	G = 1.31846	$\frac{N_2^{-2}}{N_1^{-3}} = 1.31846$	$B - \frac{N_2^{1}}{N_1^{0}} = 0.00000$	$G - \frac{N_2^{-2}}{N_1^{-3}} = 0.00000$
C = 3.19372	$\frac{N_2^{2}}{N_1^{1}} = 3.19372$	H = 1.05685	$\frac{N_2^{-3}}{N_1^{-4}} = 1.05685$	$C - \frac{N_2^{2}}{N_1^{1}} = 0.00000$	$H - \frac{N_2^{-3}}{N_1^{-4}} = 0.00000$
D = 3.98432	$\frac{N_2^{3}}{N_1^{2}} = 3.98432$	I = 0.84714	$\frac{N_2^{-4}}{N_1^{-5}} = 0.84714$	$D - \frac{N_2^{3}}{N_1^{2}} = 0.00000$	$I - \frac{N_2^{-4}}{N_1^{-5}} = 0.00000$
E = 4.97062	$\frac{N_2^{4}}{N_1^{3}} = 4.97062$			$E - \frac{N_2^{4}}{N_1^{3}} = 0.00000$	



$N_1 = 2.13284$

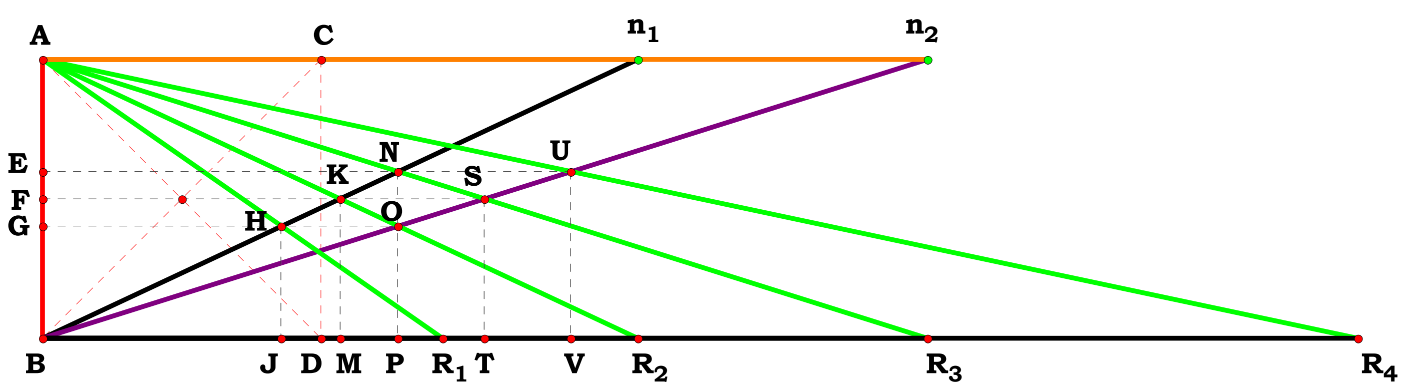
$N_2 = 3.17169$

$R_1 = 1.43425$

$R_2 = 2.13284$

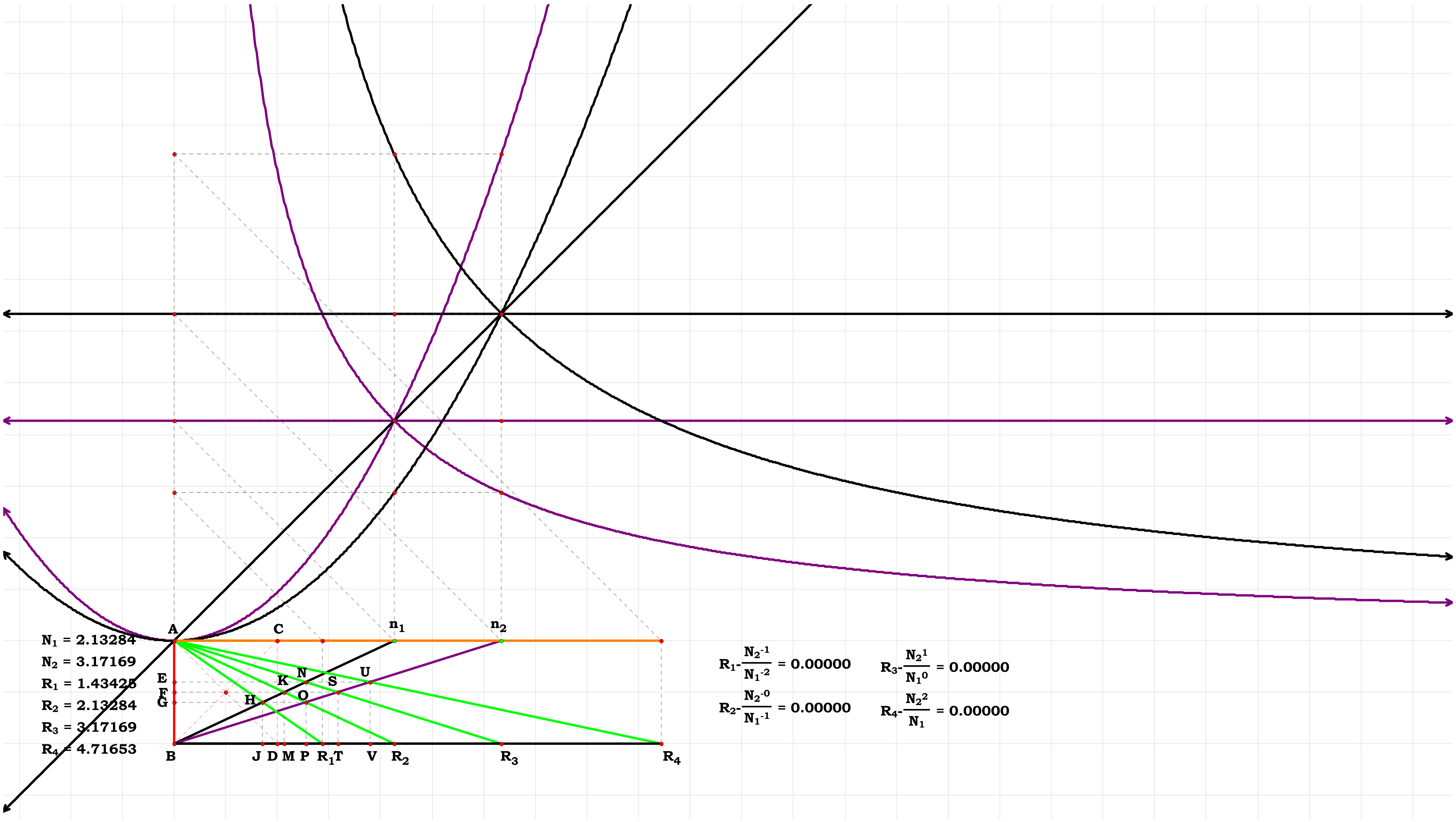
$R_3 = 3.17169$

$R_4 = 4.71653$



$$R_1 - \frac{N_1^{\,2}}{N_2} = 0 \qquad R_2 - N_1 = 0 \qquad R_3 - N_2 = 0 \qquad R_4 - \frac{N_2^{\,2}}{N_1} = 0$$

$$R_1 - \frac{N_2^{\,-1}}{N_1^{\,-2}} = 0 \qquad R_2 - \frac{N_2^{\,-0}}{N_1^{\,-1}} = 0 \qquad R_3 - \frac{N_2^{\,1}}{N_1^{\,0}} = 0 \qquad R_4 - \frac{N_2^{\,2}}{N_1} = 0$$



A
C
n_1
n_2
N_1 = 2.13284
N_2 = 3.17169
R_1 = 1.43425
R_2 = 2.13284
R_3 = 3.17169
R_4 = 4.71653
E
F
G
H
K
N
O
S
U
B
J D M P R_1 T V R_2 R_3 R_4
$R_1 - \frac{N_2^{-1}}{N_1^{-2}}$ = 0.00000
$R_3 - \frac{N_2^{1}}{N_1^{0}}$ = 0.00000
$R_2 - \frac{N_2^{-0}}{N_1^{-1}}$ = 0.00000
$R_4 - \frac{N_2^{2}}{N_1}$ = 0.00000

080912

$$AB := 1$$
$$N_1 := 3.46347$$
$$N_2 := 2.62874$$

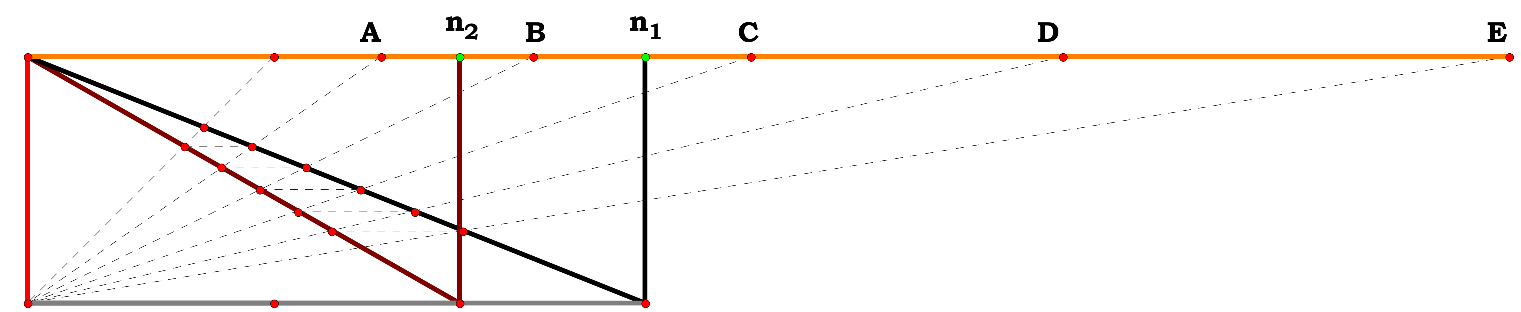
A = 1.43109 $\quad \frac{N_1}{N_2}$-A = 0.00000

B = 2.04801 $\quad \frac{N_1{}^2}{N_2}$-B = 0.00000

C = 2.93088 $\quad \frac{N_1{}^3}{N_2}$-C = 0.00000

D = 4.19435 $\quad \frac{N_1{}^4}{N_2}$-D = 0.00000

E = 6.00248 $\quad \frac{N_1{}^5}{N_2}$-E = 0.00000



$$AE := \frac{AB}{N_2 + AB} \qquad BN := AE \cdot N_1$$

$$A_1 := \frac{BN}{1 - AE} \qquad AF := \frac{A_1}{A_1 + N_2}$$

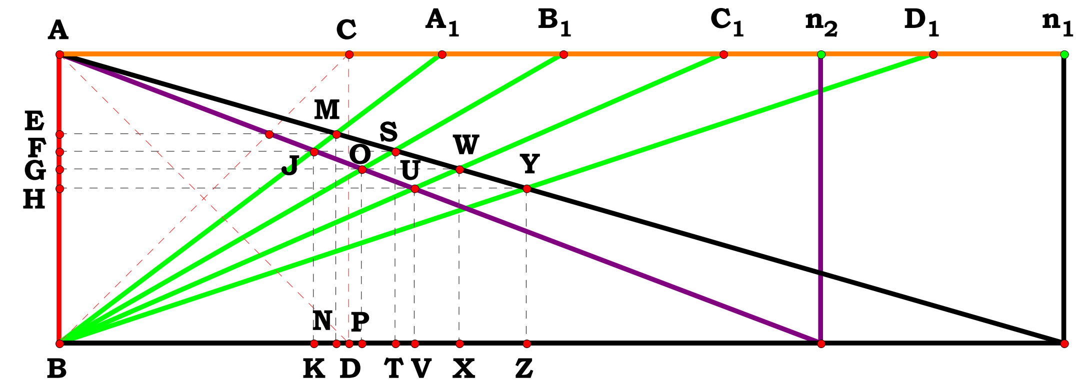
$$BT := AF \cdot N_1 \qquad B_1 := \frac{BT}{1 - AF}$$

$$AG := \frac{B_1}{B_1 + N_2} \qquad BX := AG \cdot N_1$$

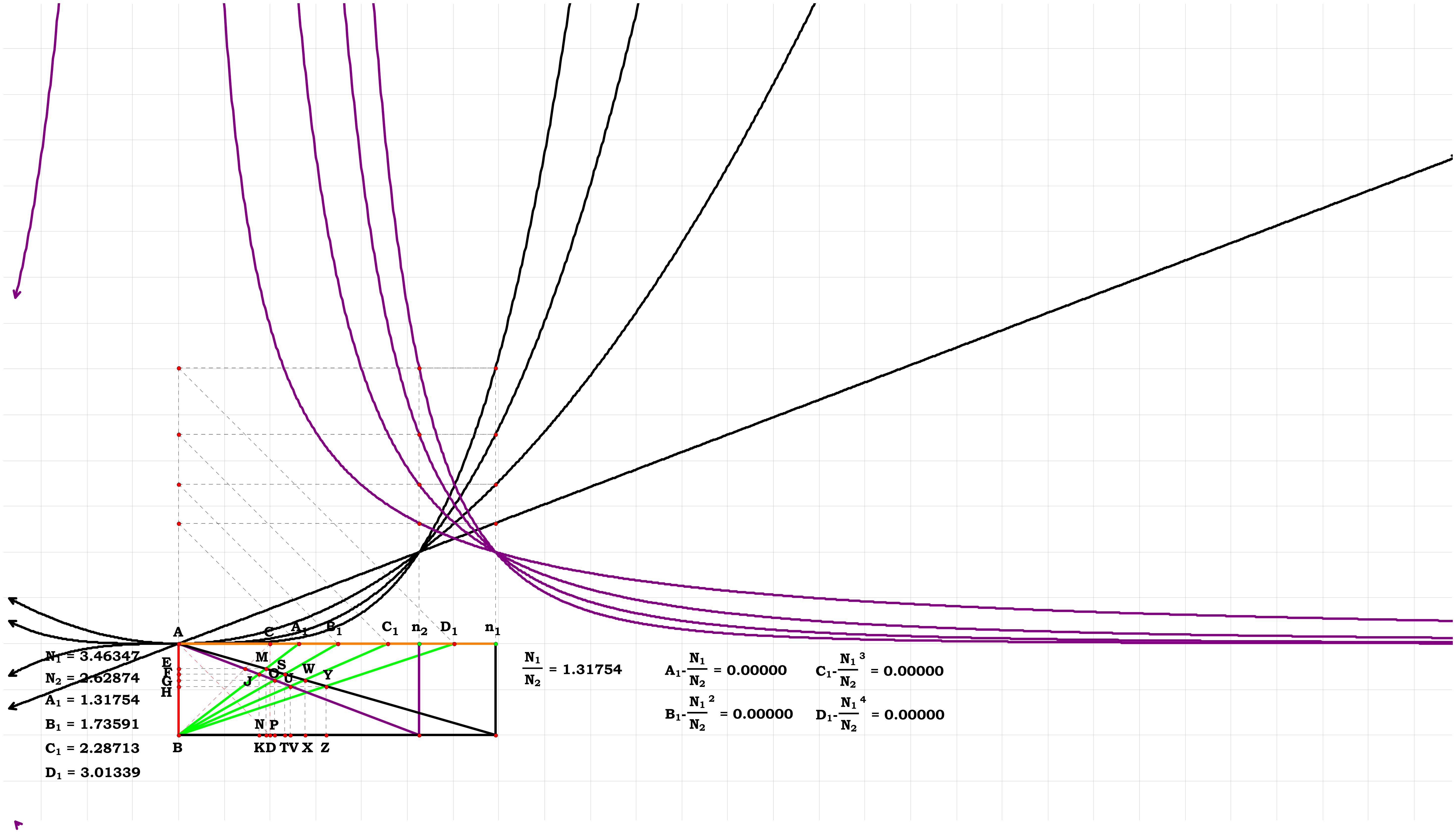
$$C_1 := \frac{BX}{1 - AG} \qquad AH := \frac{C_1}{C_1 + N_2}$$

$$BZ := AH \cdot N_1 \qquad D_1 := \frac{BZ}{1 - AH}$$

N_1 = 3.46347
N_2 = 2.62874
A_1 = 1.31754
B_1 = 1.73591
C_1 = 2.28713
D_1 = 3.01339



$$A_1 - \frac{N_1}{N_2} = 0 \qquad B_1 - \left(\frac{N_1}{N_2}\right)^2 = 0 \qquad C_1 - \left(\frac{N_1}{N_2}\right)^3 = 0 \qquad D_1 - \left(\frac{N_1}{N_2}\right)^4 = 0$$



A
C
A1
B1
C1
n2
D1
n1
N1 = 3.46347
N2 = 2.62874
A1 = 1.31754
B1 = 1.73591
C1 = 2.28713
D1 = 3.01339
E
F
G
H
M
S
O
U
W
Y
J
N P
B
KD TV X Z
N1/N2 = 1.31754
A1 - N1/N2 = 0.00000
B1 - (N1/N2)^2 = 0.00000
C1 - (N1/N2)^3 = 0.00000
D1 - (N1/N2)^4 = 0.00000

081112

$AB := 1$

$N_1 := 1.24957$

$N_2 := 2.52225$

$N_3 := .58657$

Although one can project the results from the origin, the exponential ladder is made behind it and must be completed anyway.

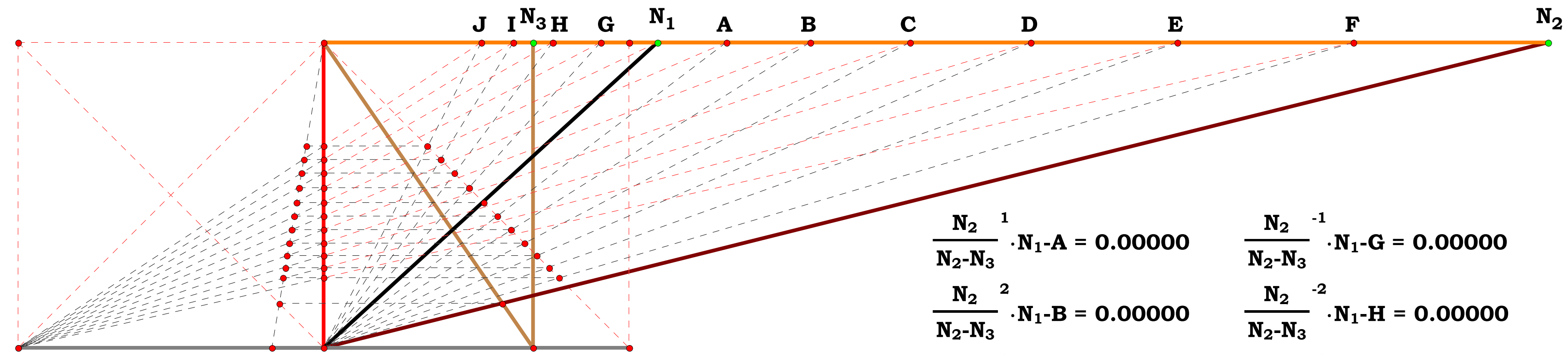
$$BI := 1 - \frac{N_2}{N_2 + N_3} \qquad BP := \frac{BI}{1 - BI} \qquad BF := \frac{1}{N_1 + 1}$$

$$FK := BP\cdot(1 - BF) \qquad R_2 := \frac{1 - FK}{BF} - 1 \qquad BE := \frac{1}{R_2 + 1}$$

$$EK := BP\cdot(1 - BE) \qquad R_1 := \frac{1 - EK}{BE} - 1 \qquad GM := \frac{BP\cdot N_1}{N_1 + 1 - BP}$$

$$BG := 1 - \frac{GM}{BP} \qquad R_3 := \frac{1}{BG} - 1 \qquad HN := \frac{BP\cdot R_3}{R_3 + 1 - BP}$$

$$BH := 1 - \frac{HN}{BP} \qquad R_4 := \frac{1}{BH} - 1$$



$$\left(\frac{N_1^{\frac{1}{4}}\cdot N_2}{N_2-N_3}\right)^4 - D = 0.00000$$

$$\frac{N_1\cdot N_2^4}{(N_2-N_3)^4} - D = 0.00000$$

$$\frac{N_2}{N_2-N_3} = 1.20647$$

$N_1 = 1.09230$

$N_2 = 4.00439$

$N_3 = 0.68530$

$A = 1.31783$

$B = 1.58992$

$C = 1.91819$

$D = 2.31425$

$E = 2.79207$

$F = 3.36855$

$G = 0.90537$

$H = 0.75043$

$I = 0.62200$

$J = 0.51556$

$$\left(\frac{N_2}{N_2-N_3}\right)^1\cdot N_1 - A = 0.00000 \qquad \left(\frac{N_2}{N_2-N_3}\right)^{-1}\cdot N_1 - G = 0.00000$$

$$\left(\frac{N_2}{N_2-N_3}\right)^2\cdot N_1 - B = 0.00000 \qquad \left(\frac{N_2}{N_2-N_3}\right)^{-2}\cdot N_1 - H = 0.00000$$

$$\left(\frac{N_2}{N_2-N_3}\right)^3\cdot N_1 - C = 0.00000 \qquad \left(\frac{N_2}{N_2-N_3}\right)^{-3}\cdot N_1 - I = 0.00000$$

$$\left(\frac{N_2}{N_2-N_3}\right)^4\cdot N_1 - D = 0.00000 \qquad \left(\frac{N_2}{N_2-N_3}\right)^{-4}\cdot N_1 - J = 0.00000$$

$$\left(\frac{N_2}{N_2-N_3}\right)^5\cdot N_1 - E = 0.00000$$

$$\left(\frac{N_2}{N_2-N_3}\right)^6\cdot N_1 - F = 0.00000$$

$N_1 = 1.24957$

$N_2 = 2.52225$

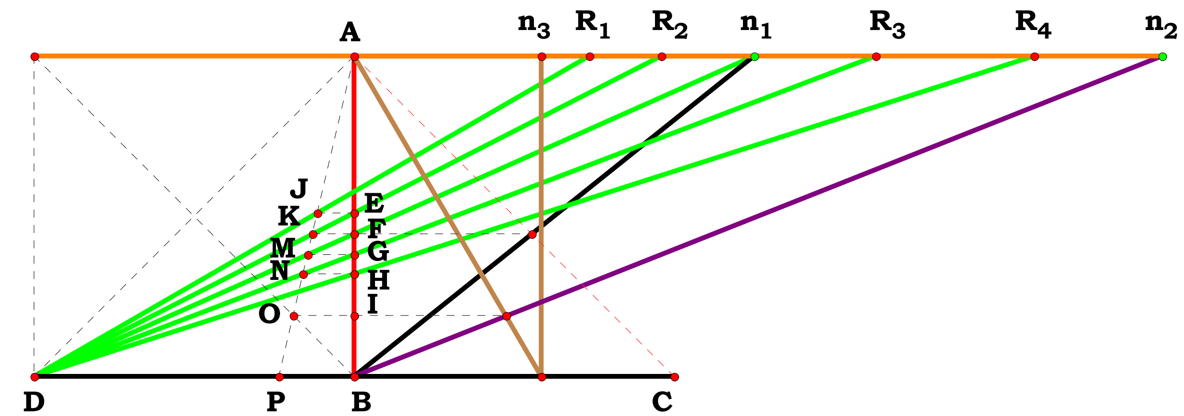
$N_3 = 0.58657$

$R_1 = 0.73596$

$R_2 = 0.95897$

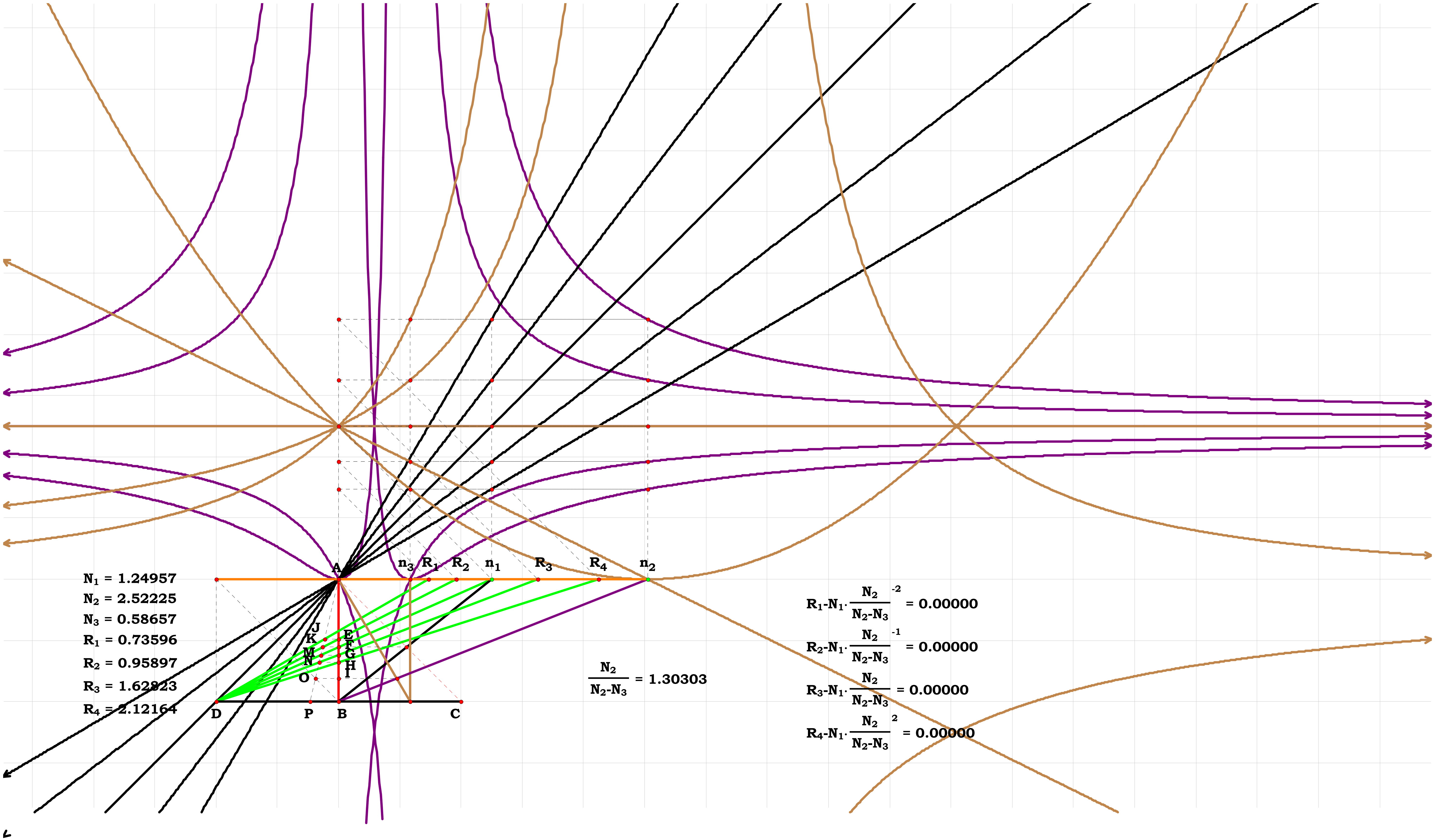
$R_3 = 1.62823$

$R_4 = 2.12164$



$$R_1 - \frac{N_1\cdot(N_2 - N_3)^2}{N_2^{\,2}} = 0 \qquad R_2 - \frac{N_1\cdot(N_2 - N_3)}{N_2} = 0 \qquad R_3 - \frac{N_1\cdot N_2}{N_2 - N_3} = 0 \qquad R_4 - \frac{N_1\cdot N_2^{\,2}}{(N_2 - N_3)^2} = 0$$

$$R_1 - N_1\cdot\left(\frac{N_2}{N_2 - N_3}\right)^{-2} = 0 \qquad R_2 - N_1\cdot\left(\frac{N_2}{N_2 - N_3}\right)^{-1} = 0 \qquad R_3 - N_1\cdot\frac{N_2}{N_2 - N_3} = 0 \qquad R_4 - N_1\cdot\left(\frac{N_2}{N_2 - N_3}\right)^{2} = 0$$

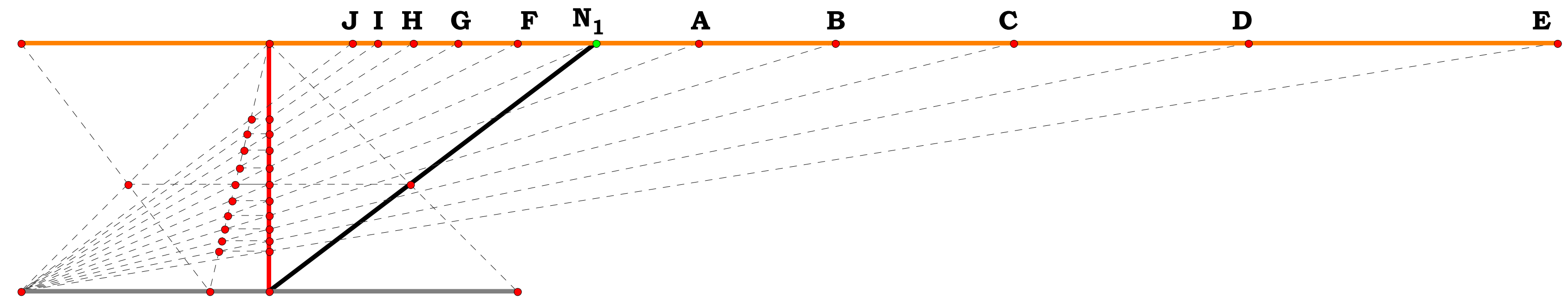


$N_1 = 1.24957$
$N_2 = 2.52225$
$N_3 = 0.58657$
$R_1 = 0.73596$
$R_2 = 0.95897$
$R_3 = 1.62823$
$R_4 = 2.12164$
A
n_3 R_1 R_2 n_1 R_3 R_4 n_2
J K M N O E F G H I
D P B C
$\frac{N_2}{N_2 - N_3} = 1.30303$
$R_1 - N_1 \cdot \left(\frac{N_2}{N_2 - N_3}\right)^{-2} = 0.00000$
$R_2 - N_1 \cdot \left(\frac{N_2}{N_2 - N_3}\right)^{-1} = 0.00000$
$R_3 - N_1 \cdot \frac{N_2}{N_2 - N_3} = 0.00000$
$R_4 - N_1 \cdot \left(\frac{N_2}{N_2 - N_3}\right)^{2} = 0.00000$

081212

$AB := 1$

$N_1 := 1.47934$



$N_1 = 1.31554$

$A = 1.73065$
$B = 2.27675$
$C = 2.99516$
$D = 3.94026$
$E = 5.18358$

$F = 1.00000$
$G = 0.76014$
$H = 0.57782$
$I = 0.43922$
$J = 0.33387$

$N_1^2\text{-}A = 0.00000$
$N_1^3\text{-}B = 0.00000$
$N_1^4\text{-}C = 0.00000$
$N_1^5\text{-}D = 0.00000$
$N_1^6\text{-}E = 0.00000$

$N_1^0\text{-}F = 0.00000$
$N_1^{-1}\text{-}G = 0.00000$
$N_1^{-2}\text{-}H = 0.00000$
$N_1^{-3}\text{-}I = 0.00000$
$N_1^{-4}\text{-}J = 0.00000$

$$BG := \frac{1}{N_1 + 1} \qquad GS := 1 - BG \qquad TU := \frac{1 - GS}{1 - BG}$$

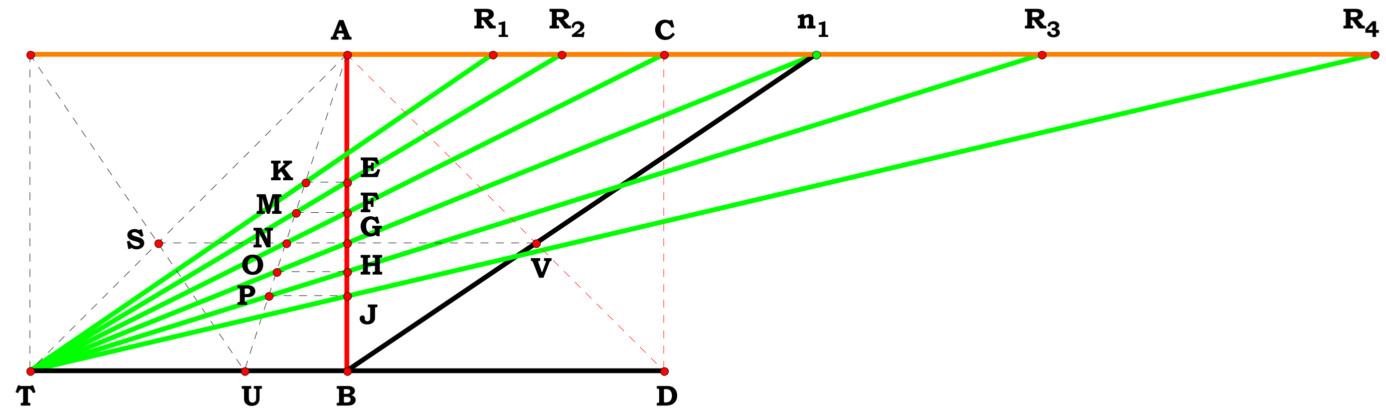
$$BU := 1 - TU \qquad GN := BU \cdot (1 - BG) \qquad AC := \frac{1 - GN}{BG} - 1$$

$$AC = 1 \qquad BF := \frac{1}{1 + AC} \qquad FM := BU \cdot (1 - BF)$$

$$R_2 := \frac{1 - FM}{BF} - 1 \qquad BE := \frac{1}{1 + R_2} \qquad EK := BU \cdot (1 - BE)$$

$$R_1 := \frac{1 - EK}{BE} - 1 \qquad N_1 - \left(\frac{1}{BG} - 1\right) = 0$$

$N_1 = 1.47934$
$R_1 = 0.45694$
$R_2 = 0.67598$
$R_3 = 2.18845$
$R_4 = 3.23746$



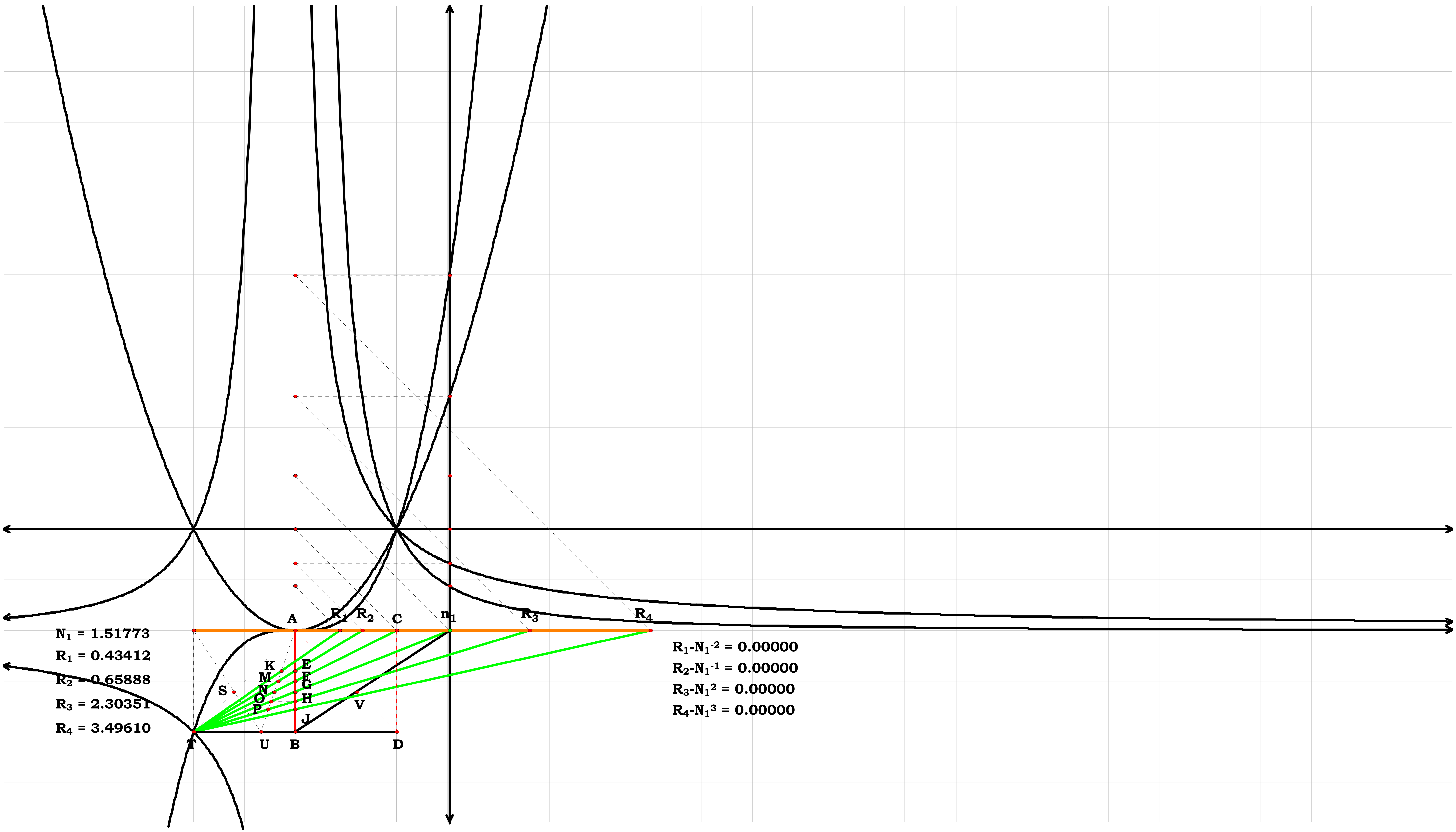
$$HO := \frac{N_1 \cdot BU}{N_1 + 1 - BU} \qquad BH := 1 - \frac{HO}{BU} \qquad R_3 := \frac{1}{BH} - 1$$

$$JP := \frac{R_3 \cdot BU}{R_3 + 1 - BU} \qquad BJ := 1 - \frac{JP}{BU} \qquad R_4 := \frac{1}{BJ} - 1$$

$R_1 = 0.456945 \qquad R_2 = 0.675977 \qquad R_3 = 2.188447 \qquad R_4 = 3.237457$

$$R_1 - \frac{1}{N_1{}^2} = 0 \qquad R_2 - \frac{1}{N_1} = 0 \qquad AB - AC = 0 \qquad N_1 - N_1 = 0 \qquad R_3 - N_1{}^2 = 0 \qquad R_4 - N_1{}^3 = 0$$

$$R_1 - N_1{}^{-2} = 0 \qquad R_2 - N_1{}^{-1} = 0 \qquad AB - N_1{}^0 = 0 \qquad N_1 - N_1{}^1 = 0 \qquad R_3 - N_1{}^2 = 0 \qquad R_4 - N_1{}^3 = 0$$

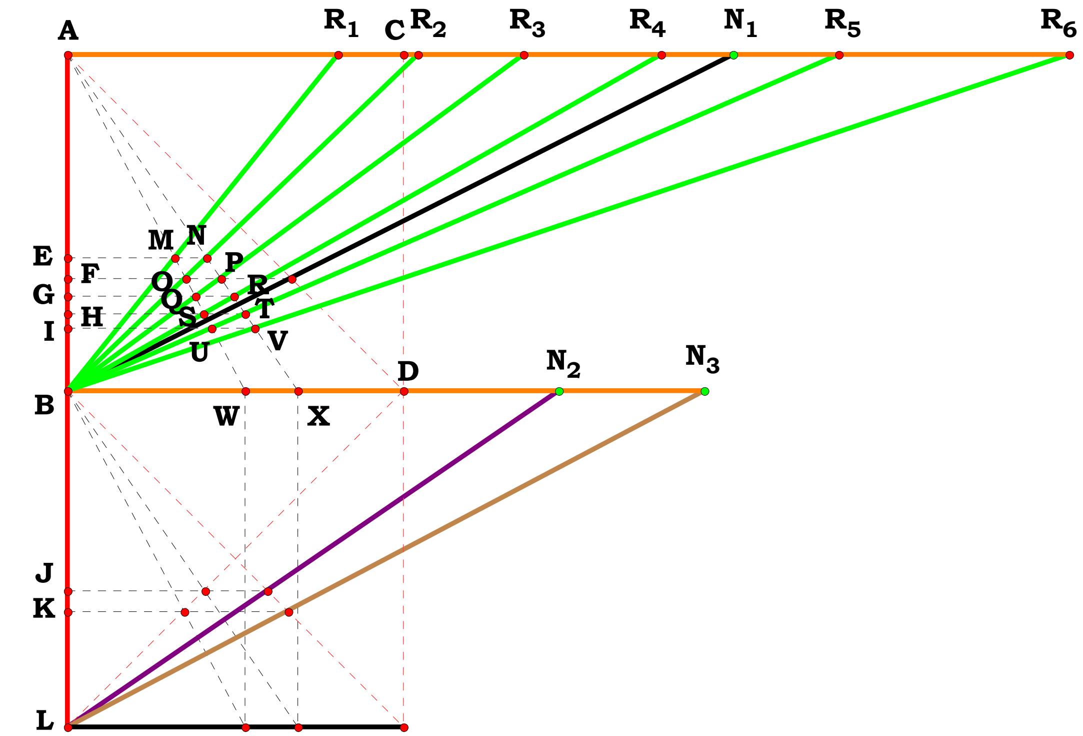


N_1 = 1.51773
R_1 = 0.43412
R_2 = 0.65888
R_3 = 2.30351
R_4 = 3.49610
A
R_1
R_2
C
n_1
R_3
R_4
K
M
N
O
P
E
F
G
H
J
S
V
T
U
B
D
R_1-N_1^{-2} = 0.00000
R_2-N_1^{-1} = 0.00000
R_3-N_1^{2} = 0.00000
R_4-N_1^{3} = 0.00000

081312

$$AB := 1$$
$$N_1 := 1.97774$$
$$N_2 := 1.45792$$
$$N_3 := 1.89462$$

$N_1 = 1.97774$
$N_2 = 1.45792$
$N_3 = 1.89462$
$R_1 = 0.80326$
$R_2 = 1.04387$
$R_3 = 1.35655$
$R_4 = 1.76289$
$R_5 = 2.29095$
$R_6 = 2.97718$



$$BF := \frac{1}{N_1 + 1} \quad JL := \frac{1}{N_2 + 1} \quad KL := \frac{1}{N_3 + 1} \quad BX := \frac{JL}{1 - JL}$$

$$BW := \frac{KL}{1 - KL} \quad FP := BX\cdot(1 - BF) \quad FO := BW\cdot(1 - BF)$$

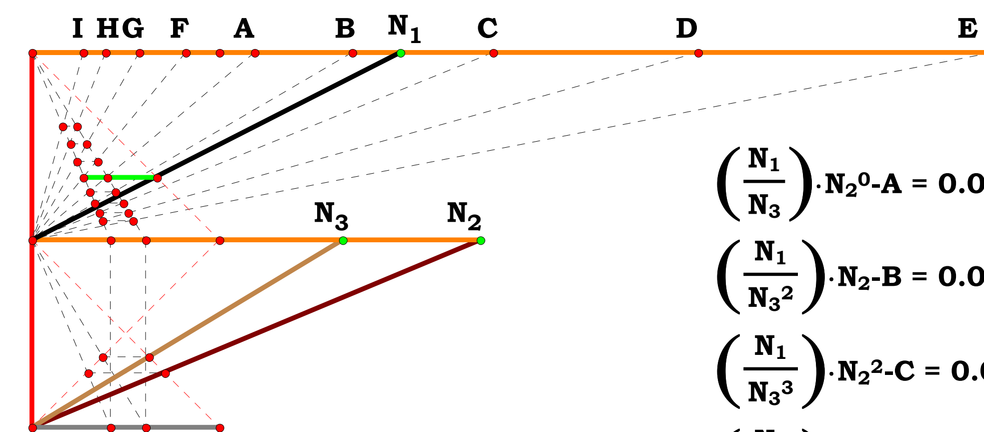
$$R_3 := \frac{FP}{BF} \quad R_2 := \frac{FO}{BF} \quad BE := \frac{BX}{R_2 + BX} \quad EM := BW\cdot(1 - BE)$$

$$R_1 := \frac{EM}{BE} \quad BG := \frac{BW}{R_3 + BW} \quad GR := BX\cdot(1 - BG) \quad R_4 := \frac{GR}{BG}$$

$$BH := \frac{BW}{R_4 + BW} \quad HT := BX\cdot(1 - BH) \quad R_5 := \frac{HT}{BH} \quad BI := \frac{BW}{R_5 + BW}$$

$$IV := BX\cdot(1 - BI) \quad R_6 := \frac{IV}{BI}$$

I reordered N_2 and N_3.



$$\left(\frac{N_1}{N_3}\right)\cdot N_2^{0}\text{-}A = 0.00000 \quad \left(\frac{N_1}{N_3^{0}}\right)\cdot N_2^{-1}\text{-}F = 0.00000$$
$$\left(\frac{N_1}{N_3^{2}}\right)\cdot N_2\text{-}B = 0.00000 \quad \left(\frac{N_1}{N_3^{-1}}\right)\cdot N_2^{-2}\text{-}G = 0.00000$$
$$\left(\frac{N_1}{N_3^{3}}\right)\cdot N_2^{2}\text{-}C = 0.00000 \quad \left(\frac{N_1}{N_3^{-2}}\right)\cdot N_2^{-3}\text{-}H = 0.00000$$
$$\left(\frac{N_1}{N_3^{4}}\right)\cdot N_2^{3}\text{-}D = 0.00000 \quad \left(\frac{N_1}{N_3^{-3}}\right)\cdot N_2^{-4}\text{-}I = 0.00000$$
$$\left(\frac{N_1}{N_3^{5}}\right)\cdot N_2^{4}\text{-}E = 0.00000$$

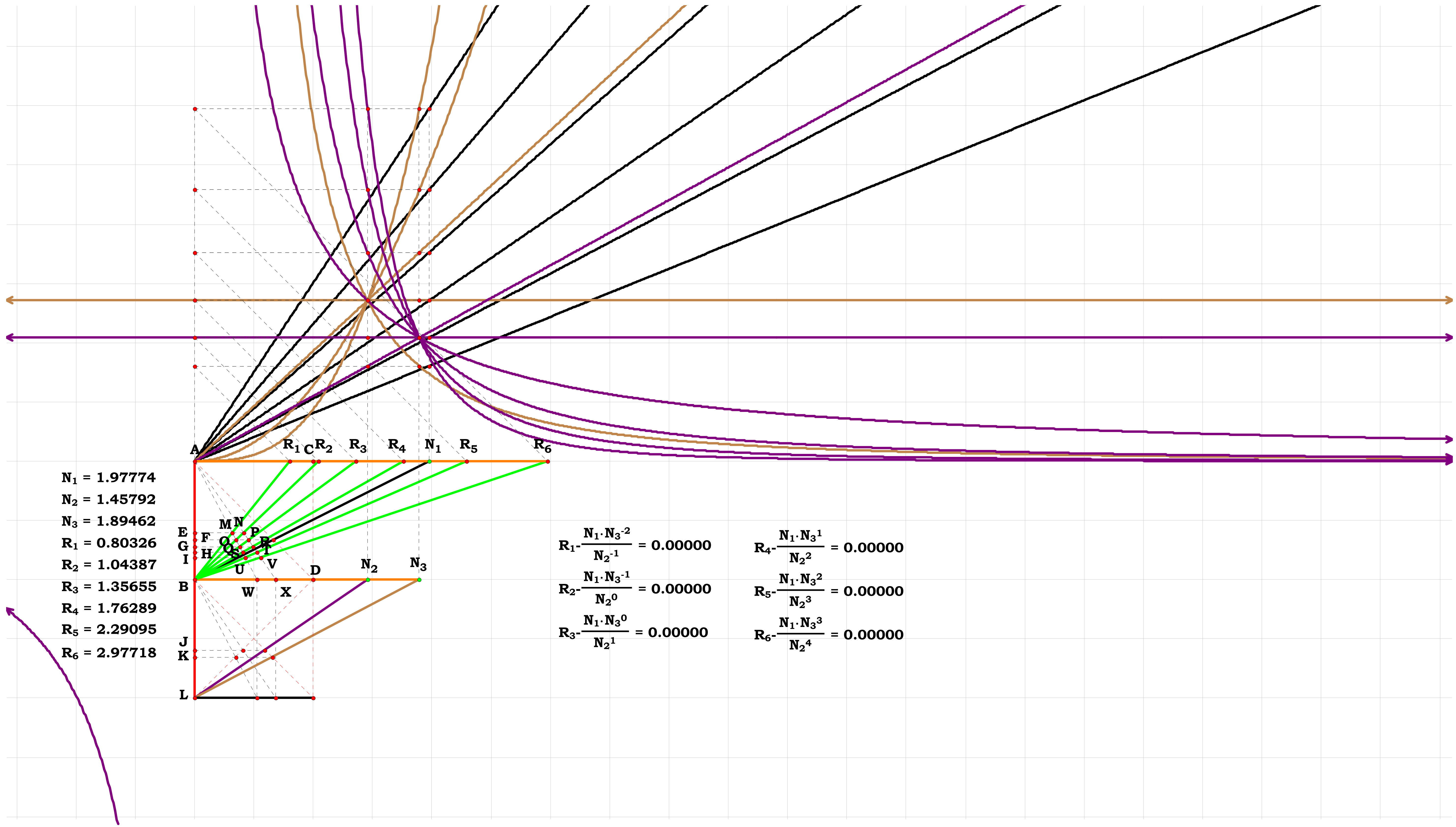
$$R_1 - \frac{N_1\cdot N_2}{N_3^{\,2}} = 0 \quad R_2 - \frac{N_1}{N_3} = 0 \quad R_3 - \frac{N_1}{N_2} = 0$$

$$R_4 - \frac{N_1\cdot N_3}{N_2^{\,2}} = 0 \quad R_5 - \frac{N_1\cdot N_3^{\,2}}{N_2^{\,3}} = 0 \quad R_6 - \frac{N_1\cdot N_3^{\,3}}{N_2^{\,4}} = 0$$

$N_1 = 1.95987$	$A = 1.18227$	$F = 0.81960$
$N_2 = 2.39124$	$B = 1.70541$	$G = 0.56819$
$N_3 = 1.65771$	$C = 2.46005$	$H = 0.39389$
	$D = 3.54859$	$I = 0.27306$
	$E = 5.11881$	

from which one can derive:

$$R_1 - \frac{N_1}{N_2^{-1}}\cdot N_3^{-2} = 0 \quad R_2 - \frac{N_1}{N_2^{0}}\cdot N_3^{-1} = 0 \quad R_3 - \frac{N_1}{N_2^{1}}\cdot N_3^{0} = 0 \quad R_4 - \frac{N_1}{N_2^{2}}\cdot N_3^{1} = 0 \quad R_5 - \frac{N_1}{N_2^{3}}\cdot N_3^{2} = 0 \quad R_6 - \frac{N_1}{N_2^{4}}\cdot N_3^{3} = 0$$



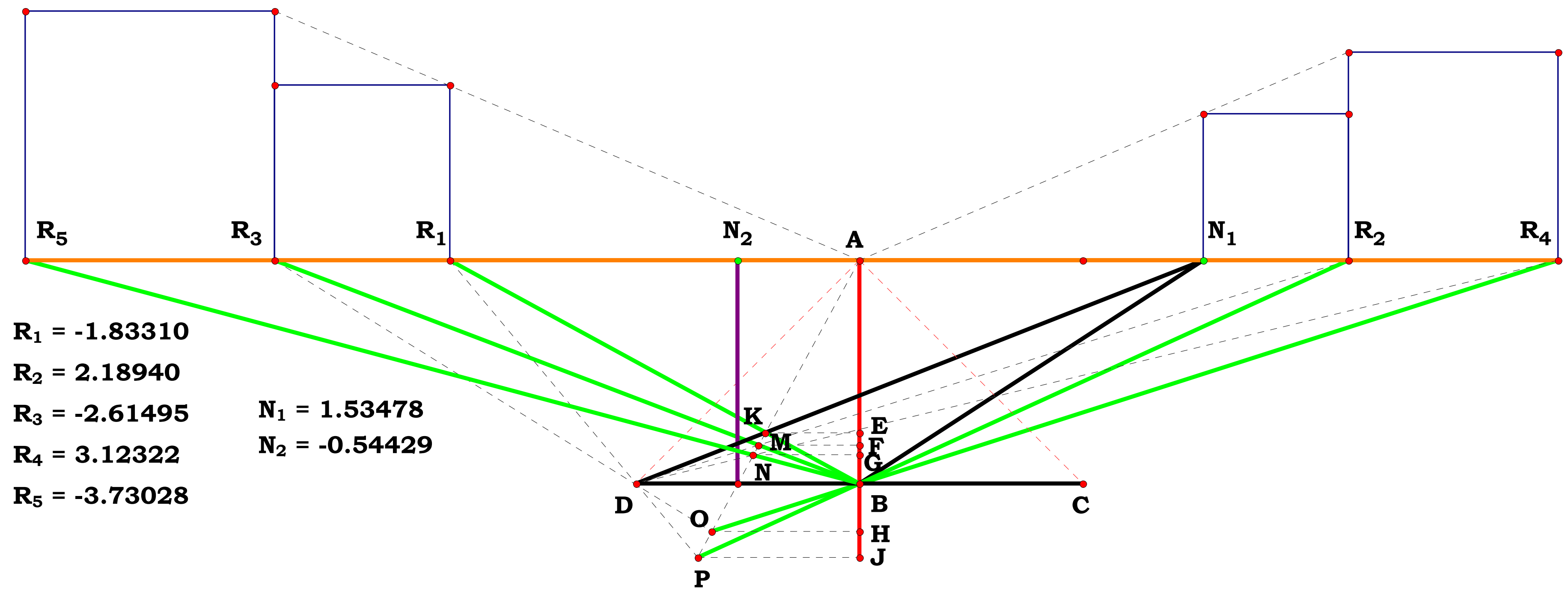
A
R1
C
R2
R3
R4
N1
R5
R6
N1 = 1.97774
N2 = 1.45792
N3 = 1.89462
R1 = 0.80326
R2 = 1.04387
R3 = 1.35655
R4 = 1.76289
R5 = 2.29095
R6 = 2.97718
E
F
G
H
I
M
N
O
P
Q
R
S
T
U
V
B
W
X
D
N2
N3
J
K
L
$R_1 - \frac{N_1 \cdot N_3^{-2}}{N_2^{-1}} = 0.00000$
$R_2 - \frac{N_1 \cdot N_3^{-1}}{N_2^{0}} = 0.00000$
$R_3 - \frac{N_1 \cdot N_3^{0}}{N_2^{1}} = 0.00000$
$R_4 - \frac{N_1 \cdot N_3^{1}}{N_2^{2}} = 0.00000$
$R_5 - \frac{N_1 \cdot N_3^{2}}{N_2^{3}} = 0.00000$
$R_6 - \frac{N_1 \cdot N_3^{3}}{N_2^{4}} = 0.00000$

081712

$AB := 1$

$N_1 := 1.53478$

$N_2 := -0.54429$



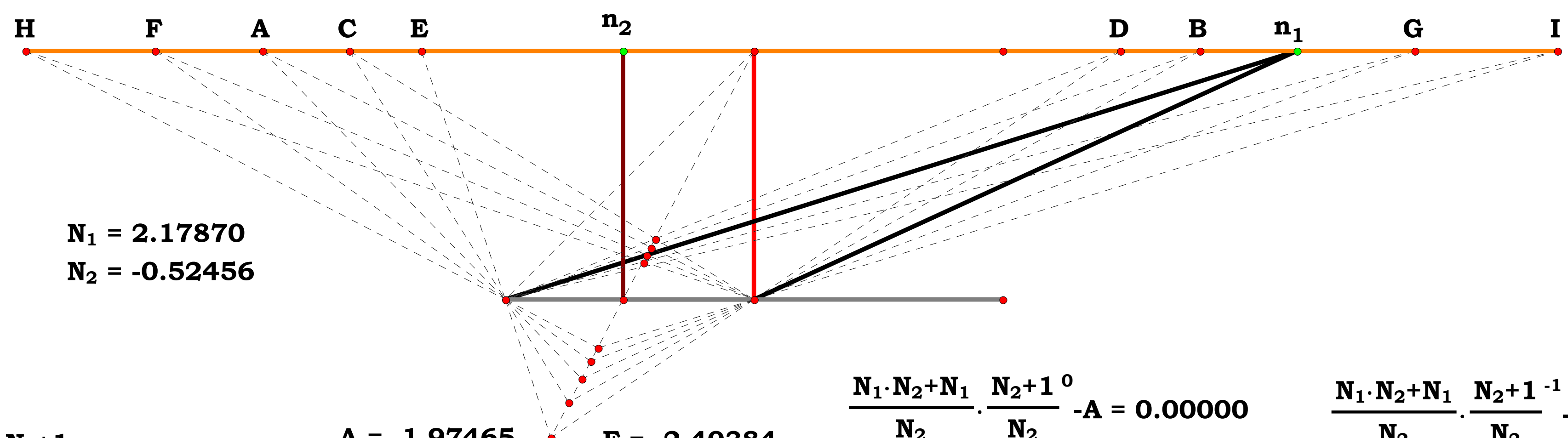
$$BE := \frac{N_2 + 1}{N_1 + N_2 + 1} \qquad EK := \frac{N_1 \cdot N_2}{N_1 + 1 + N_2} \qquad R_1 := \frac{EK}{BE}$$

$$BJ := \frac{N_2 + 1}{N_2 + 1 + R_1} \qquad JP := \frac{R_1 \cdot N_2}{R_1 + 1 + N_2} \qquad R_2 := \frac{JP}{BJ}$$

$$BF := \frac{N_2 + 1}{N_2 + 1 + R_2} \qquad FM := \frac{R_2 \cdot N_2}{R_2 + 1 + N_2} \qquad R_3 := \frac{FM}{BF}$$

$$BH := \frac{N_2 + 1}{N_2 + 1 + R_3} \qquad HO := \frac{R_3 \cdot N_2}{R_3 + 1 + N_2} \qquad R_4 := \frac{HO}{BH}$$

$$BG := \frac{N_2 + 1}{N_2 + 1 + R_4} \qquad GN := \frac{R_4 \cdot N_2}{R_4 + 1 + N_2} \qquad R_5 := \frac{GN}{BG}$$



$R_1 = -1.833107 \qquad R_2 = 2.189423 \qquad R_3 = -2.614999$

$R_4 = 3.123297 \qquad R_5 = -3.730398$

$$R_1 - \frac{N_1 \cdot N_2}{N_2 + 1} = 0 \qquad R_2 - \frac{N_2 \cdot R_1}{N_2 + 1} = 0 \qquad R_3 - \frac{N_2 \cdot R_2}{N_2 + 1} = 0$$

$$R_4 - \frac{N_2 \cdot R_3}{N_2 + 1} = 0 \qquad R_5 - \frac{N_2 \cdot R_4}{N_2 + 1} = 0$$

$$\frac{N_2+1}{N_2} = -0.90634$$

$$\frac{N_1 \cdot N_2 + N_1}{N_2} = -1.97465$$

A = -1.97465
B = 1.78970
C = -1.62208
D = 1.47016
E = -1.33247

F = -2.40384
G = 2.65225
H = -2.92632
I = 3.22872

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{0} - A = 0.00000 \qquad \frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{-1} - N_1 = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{1} - B = 0.00000 \qquad \frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{-2} - F = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{2} - C = 0.00000 \qquad \frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{-3} - G = 0.00000$$

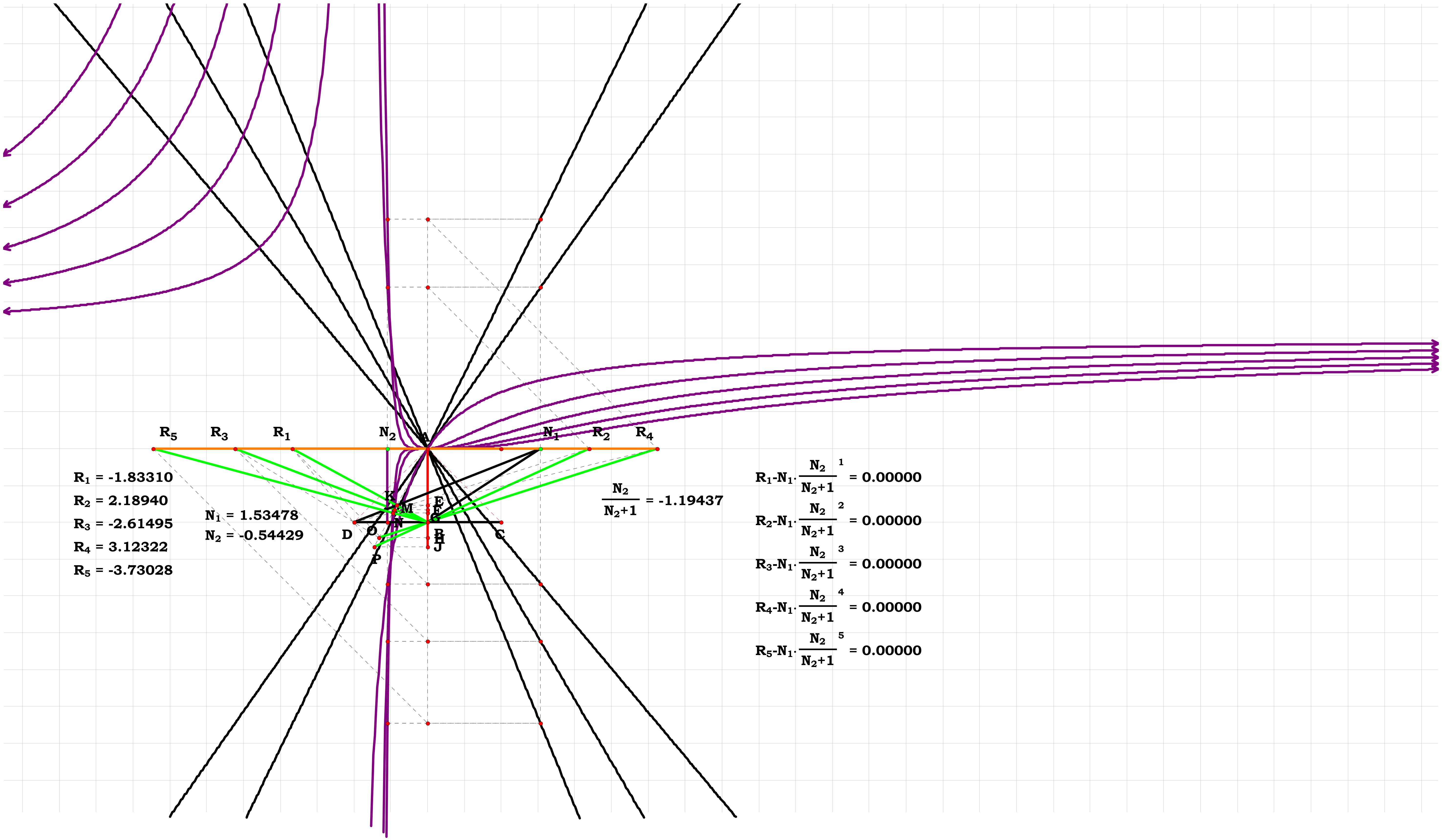
$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{3} - D = 0.00000 \qquad \frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{-4} - H = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{4} - E = 0.00000 \qquad \frac{N_1 \cdot N_2+N_1}{N_2} \cdot \frac{N_2+1}{N_2}^{-5} - I = 0.00000$$

$$R_1 - \left(\frac{N_2}{N_2 + 1}\right)^1 \cdot N_1 = 0 \qquad R_2 - \left(\frac{N_2}{N_2 + 1}\right)^2 \cdot N_1 = 0$$

$$R_3 - \left(\frac{N_2}{N_2 + 1}\right)^3 \cdot N_1 = 0 \qquad R_4 - \left(\frac{N_2}{N_2 + 1}\right)^4 \cdot N_1 = 0 \qquad R_5 - \left(\frac{N_2}{N_2 + 1}\right)^5 \cdot N_1 = 0$$

Writing these out does have an adantage!


R5 R3 R1 N2 A N1 R2 R4
K M E F
D O N B G C
H J
P
R1 = -1.83310
R2 = 2.18940
R3 = -2.61495
R4 = 3.12322
R5 = -3.73028
N1 = 1.53478
N2 = -0.54429
N2/(N2+1) = -1.19437
R1-N1·(N2/(N2+1))^1 = 0.00000
R2-N1·(N2/(N2+1))^2 = 0.00000
R3-N1·(N2/(N2+1))^3 = 0.00000
R4-N1·(N2/(N2+1))^4 = 0.00000
R5-N1·(N2/(N2+1))^5 = 0.00000

090912-1

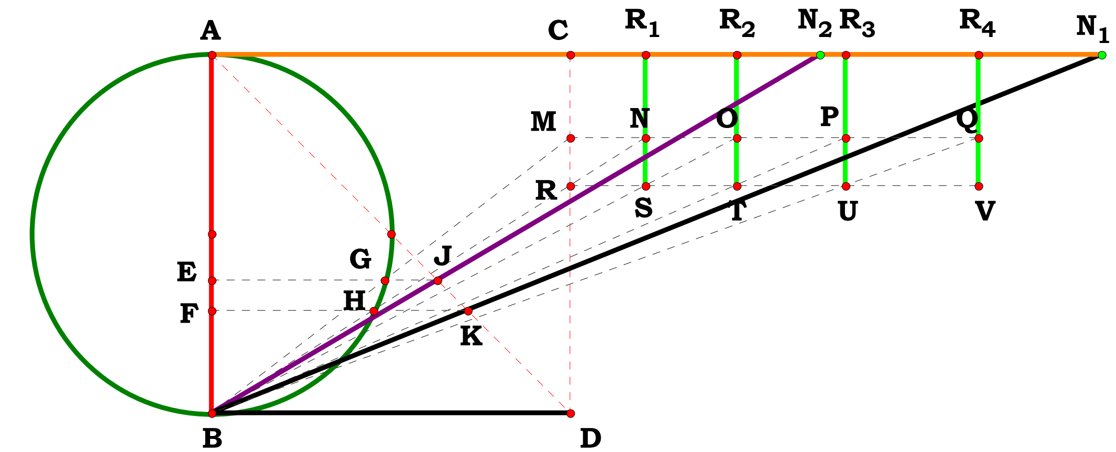
$AB := 1$

$N_1 := 2.47834$

$N_2 := 1.69523$

Here, I take the square root output of both variables and use them to project to the unit perpendicular tail to project two parallels upon which I construct the recursive series.

$N_1 = 2.47834$
$N_2 = 1.69523$
$R_1 = 1.20911$
$R_2 = 1.46194$
$R_3 = 1.76765$
$R_4 = 2.13728$



$$BE := \frac{1}{N_2+1} \quad BF := \frac{1}{N_1+1} \quad AE := AB - BE$$

$$AF := AB - BF \quad EG := \sqrt{AE \cdot BE} \quad FH := \sqrt{AF \cdot BF}$$

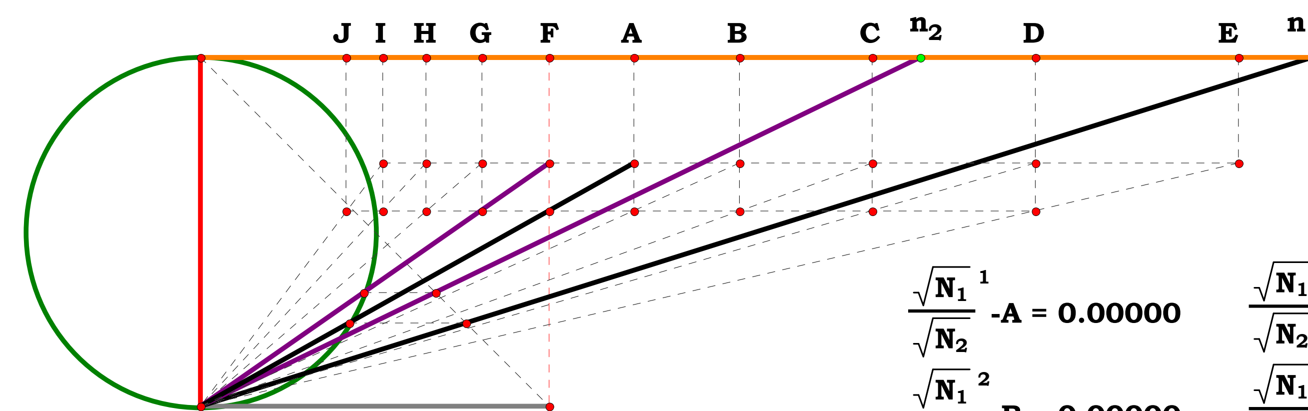
$$DM := \frac{BE}{EG} \quad DR := \frac{BF}{FH} \quad R_1 := \frac{FH}{BF} \cdot DM$$

$$R_2 := \frac{R_1}{DR} \cdot DM \quad R_3 := \frac{R_2}{DR} \cdot DM \quad R_4 := \frac{R_3}{DR} \cdot DM$$

$$R_1 - \frac{\sqrt{N_1}}{\sqrt{N_2}} = 0 \quad R_2 - \left(\frac{\sqrt{N_1}}{\sqrt{N_2}}\right)^2 = 0$$

$$R_3 - \left(\frac{\sqrt{N_1}}{\sqrt{N_2}}\right)^3 = 0 \quad R_4 - \left(\frac{\sqrt{N_1}}{\sqrt{N_2}}\right)^4 = 0$$

$R_1 = 1.209111$
$R_2 = 1.461949$
$R_3 = 1.767659$
$R_4 = 2.137295$



$$\frac{\sqrt{N_1}}{\sqrt{N_2}} = 1.24338$$

$N_1 = 3.18458$
$N_2 = 2.05988$

$A = 1.24338$
$B = 1.54601$
$C = 1.92228$
$D = 2.39013$
$E = 2.97185$

$F = 1.00000$
$G = 0.80426$
$H = 0.64683$
$I = 0.52022$
$J = 0.41839$

$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{1} - A = 0.00000 \quad \frac{\sqrt{N_1}}{\sqrt{N_2}}^{0} - F = 0.00000$$

$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{2} - B = 0.00000 \quad \frac{\sqrt{N_1}}{\sqrt{N_2}}^{-1} - G = 0.00000$$

$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{3} - C = 0.00000 \quad \frac{\sqrt{N_1}}{\sqrt{N_2}}^{-2} - H = 0.00000$$

$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{4} - D = 0.00000 \quad \frac{\sqrt{N_1}}{\sqrt{N_2}}^{-3} - I = 0.00000$$

$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{5} - E = 0.00000 \quad \frac{\sqrt{N_1}}{\sqrt{N_2}}^{-4} - J = 0.00000$$

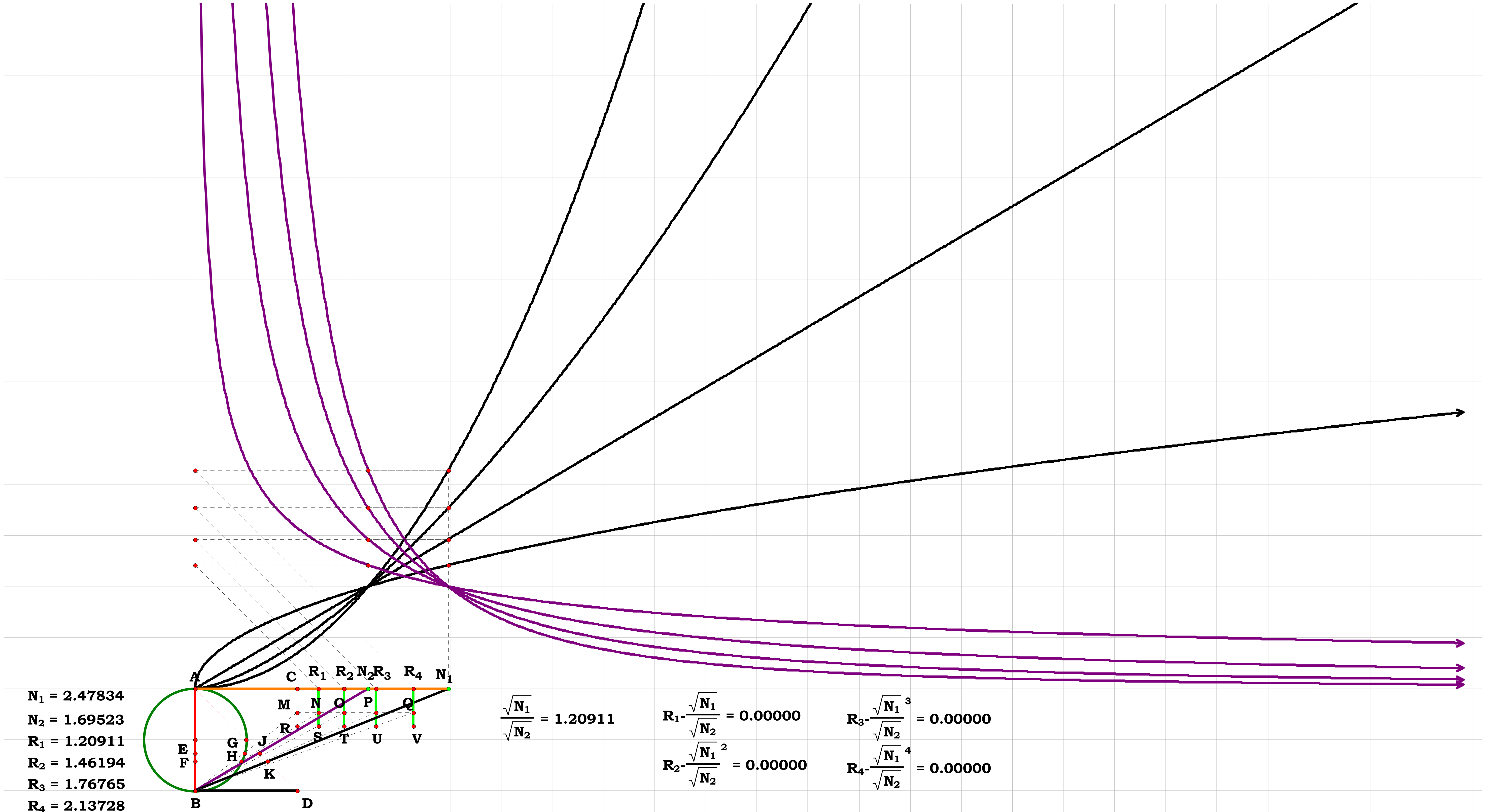
$N_1 := -2.47834$

$N_2 := -1.69523$

$$(N_1+1) \cdot \sqrt{\frac{N_1}{(N_1+1)^2}} = -1.574274i \qquad \sqrt{N_1} = 1.574274i$$

$$\frac{(N_1+1) \cdot \sqrt{\frac{N_1}{(N_1+1)^2}}}{(N_2+1) \cdot \sqrt{\frac{N_2}{(N_2+1)^2}}} = 1.209111 \qquad \frac{\sqrt{N_1}}{\sqrt{N_2}} = 1.209111$$

Now here is proof positive that current mathematical linguistic comprehension is grossly in error. Some math packages will not give this result, currently there is some dissent in the mathematical community. However, do the figure, there is absolutely no results for so called negative values. If your life depended upon accurate results, would this program satisfy you?



A
C
R_1
R_2
N_2
R_3
R_4
N_1
M
N
O
P
Q
R
S
T
U
V
E
F
G
H
J
K
B
D
$N_1 = 2.47834$
$N_2 = 1.69523$
$R_1 = 1.20911$
$R_2 = 1.46194$
$R_3 = 1.76765$
$R_4 = 2.13728$
$\frac{\sqrt{N_1}}{\sqrt{N_2}} = 1.20911$
$R_1 - \frac{\sqrt{N_1}}{\sqrt{N_2}} = 0.00000$
$R_2 - \frac{\sqrt{N_1}}{\sqrt{N_2}}^2 = 0.00000$
$R_3 - \frac{\sqrt{N_1}}{\sqrt{N_2}}^3 = 0.00000$
$R_4 - \frac{\sqrt{N_1}}{\sqrt{N_2}}^4 = 0.00000$

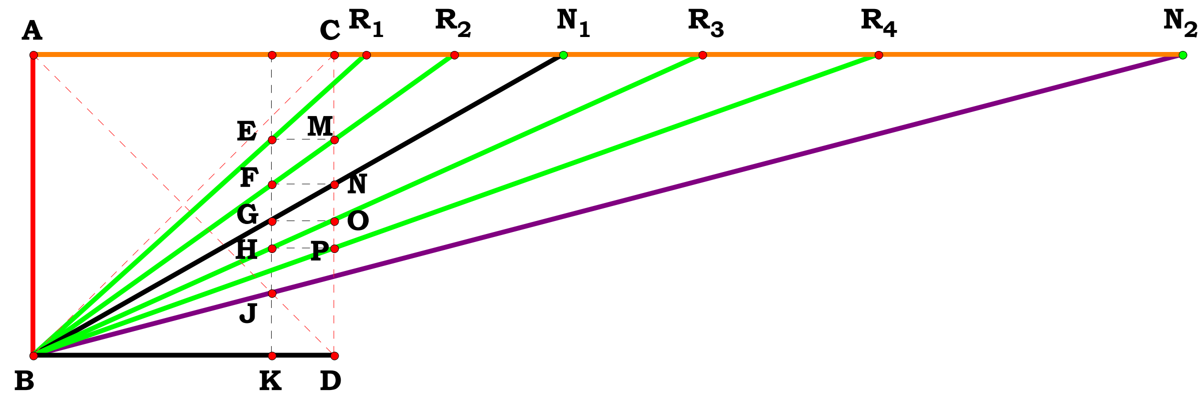
090912-2

$AB := 1$

$N_1 := 1.76087$

$N_2 := 3.81671$

$N_1 = 1.76087$
$N_2 = 3.81671$
$R_1 = 1.10562$
$R_2 = 1.39530$
$R_3 = 2.22223$
$R_4 = 2.80447$



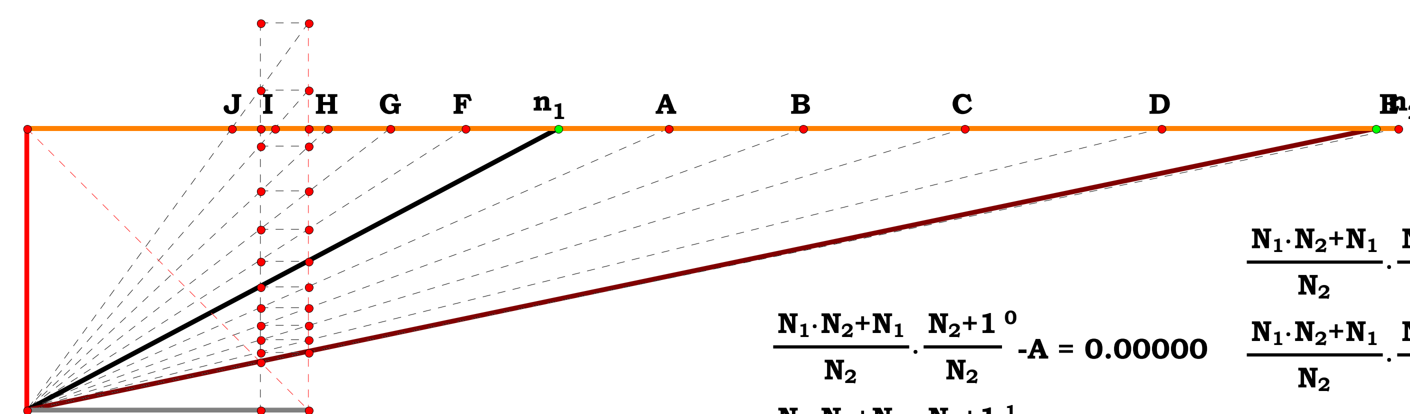
$$DK := \frac{1}{N_2+1} \qquad FK := \frac{1}{N_1} \qquad R_2 := \frac{1-DK}{FK}$$

$$EK := \frac{1}{R_2} \qquad R_1 := \frac{1-DK}{EK} \qquad GK := FK\cdot(1-DK)$$

$$R_3 := \frac{1}{GK} \qquad HK := GK\cdot(1-DK) \qquad R_4 := \frac{1}{HK}$$

$R_1 = 1.105617$ $\quad R_2 = 1.395295$

$R_3 = 2.222228$ $\quad R_4 = 2.804465$



$$\frac{N_1\cdot N_2+N_1}{N_2} = 2.27629$$

$$\frac{N_2+1}{N_2} = 1.20903$$

$N_1 = 1.88273$
$N_2 = 4.78390$

A = 2.27629	F = 1.55722
B = 2.75211	G = 1.28799
C = 3.32740	H = 1.06530
D = 4.02294	I = 0.88112
E = 4.86387	J = 0.72878

$$\frac{N_1\cdot N_2+N_1}{N_2}\cdot\frac{N_2+1}{N_2}^{-1} - N_1 = 0.00000$$

$$\frac{N_1\cdot N_2+N_1}{N_2}\cdot\frac{N_2+1}{N_2}^{0} - A = 0.00000 \qquad \frac{N_1\cdot N_2+N_1}{N_2}\cdot\frac{N_2+1}{N_2}^{-2} - F = 0.00000$$

$$\frac{N_1\cdot N_2+N_1}{N_2}\cdot\frac{N_2+1}{N_2}^{1} - B = 0.00000 \qquad \frac{N_1\cdot N_2+N_1}{N_2}\cdot\frac{N_2+1}{N_2}^{-3} - G = 0.00000$$

$$\frac{N_1\cdot N_2+N_1}{N_2}\cdot\frac{N_2+1}{N_2}^{2} - C = 0.00000 \qquad \frac{N_1\cdot N_2+N_1}{N_2}\cdot\frac{N_2+1}{N_2}^{-4} - H = 0.00000$$

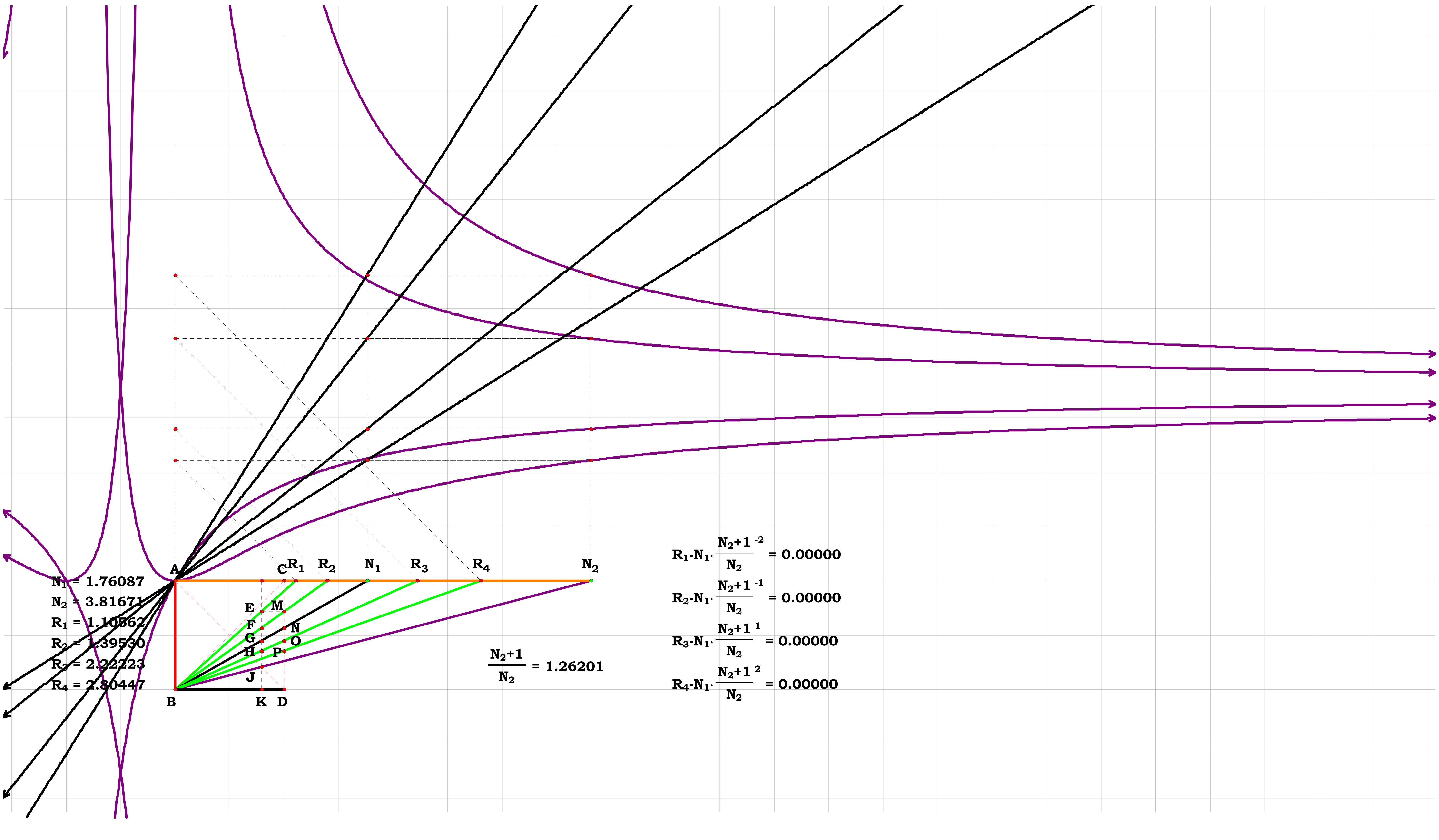
$$\frac{N_1\cdot N_2+N_1}{N_2}\cdot\frac{N_2+1}{N_2}^{3} - D = 0.00000 \qquad \frac{N_1\cdot N_2+N_1}{N_2}\cdot\frac{N_2+1}{N_2}^{-5} - I = 0.00000$$

$$\frac{N_1\cdot N_2+N_1}{N_2}\cdot\frac{N_2+1}{N_2}^{4} - E = 0.00000 \qquad \frac{N_1\cdot N_2+N_1}{N_2}\cdot\frac{N_2+1}{N_2}^{-6} - J = 0.00000$$

$$R_1 - \left[\frac{(N_2+1)}{N_2}\right]^{-2}\cdot N_1 = 0 \qquad R_2 - \left[\frac{(N_2+1)}{N_2}\right]^{-1}\cdot N_1 = 0$$

$$N_1 - \left[\frac{(N_2+1)}{N_2}\right]^{0}\cdot N_1 = 0 \qquad R_3 - \left[\frac{(N_2+1)}{N_2}\right]^{1}\cdot N_1 = 0$$

$$R_4 - \left[\frac{(N_2+1)}{N_2}\right]^{2}\cdot N_1 = 0$$



A
B
C
D
E
F
G
H
J
K
M
N
O
P
R1
R2
N1
R3
R4
N2
N1 = 1.76087
N2 = 3.81671
R1 = 1.10562
R2 = 1.39530
R3 = 2.22223
R4 = 2.80447
(N2+1)/N2 = 1.26201
R1-N1·((N2+1)/N2)^-2 = 0.00000
R2-N1·((N2+1)/N2)^-1 = 0.00000
R3-N1·((N2+1)/N2)^1 = 0.00000
R4-N1·((N2+1)/N2)^2 = 0.00000

090912-3

$$\frac{N_2\cdot(N_1+1)}{N_1\cdot(N_2+1)} = 1.10854$$

A = 1.10854
B = 1.22886
C = 1.36225
D = 1.51010
E = 1.67401
F = 0.90209
G = 0.81376
H = 0.73408
I = 0.66221

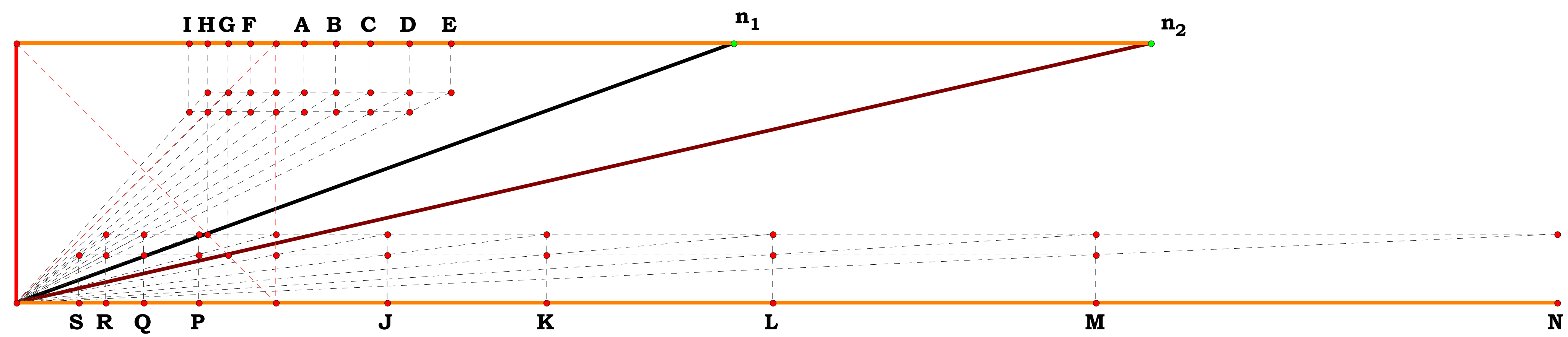
$$\left(\frac{N_2\cdot(N_1+1)}{N_1\cdot(N_2+1)}\right)^{1} - A = 0.00000$$
$$\left(\frac{N_2\cdot(N_1+1)}{N_1\cdot(N_2+1)}\right)^{2} - B = 0.00000$$
$$\left(\frac{N_2\cdot(N_1+1)}{N_1\cdot(N_2+1)}\right)^{3} - C = 0.00000$$
$$\left(\frac{N_2\cdot(N_1+1)}{N_1\cdot(N_2+1)}\right)^{4} - D = 0.00000$$
$$\left(\frac{N_2\cdot(N_1+1)}{N_1\cdot(N_2+1)}\right)^{5} - E = 0.00000$$

$$\left(\frac{N_2\cdot(N_1+1)}{N_1\cdot(N_2+1)}\right)^{-1} - F = 0.00000$$
$$\left(\frac{N_2\cdot(N_1+1)}{N_1\cdot(N_2+1)}\right)^{-2} - G = 0.00000$$
$$\left(\frac{N_2\cdot(N_1+1)}{N_1\cdot(N_2+1)}\right)^{-3} - H = 0.00000$$
$$\left(\frac{N_2\cdot(N_1+1)}{N_1\cdot(N_2+1)}\right)^{-4} - I = 0.00000$$

This plate demonstrates two series. One may also infer that for every plate I project from the bottom of the origin, I can make a different plate of it by projecting from the top origin so that each plate like this one could have a minimum of four demonstrations. One can, in fact, project anywhere on the origin wall by adding another variable to the equation as I have done on other plates.

If one works with Geometer's Sketchpad, they will quickly notice that unlike any other drawing prgram one may have, it does not have a zoom feature so one can work in small places. One either has to manually enlarge the figure, or one can print the figure to a PDF file and use the zoom feature of the reader. These print as vector graphics so one can zoom in as far as they like. My early drawings, a long time ago, were done in TommyCad, which one could zoom in as far as they like, however, it did not have motion in mind when that program was written, nor did it have the idea of writing up figures using equations.

One may also notice that where one starts a sequence from determines the resulting equation also. For example, these plates start the series from the unit perpendicular operational tail. I could have started the sequence from the operational tails of either variable as well, which would change the equation. One can even add a variable, as I have done in some plates, just to independently set the point of origine of the sequence itself.



$$\frac{N_2+1}{N_1+1} = 1.42764$$

$N_1 = 2.75971$
$N_2 = 4.36750$

J = 1.42764
K = 2.03815
L = 2.90973
M = 4.15404
N = 5.93046

P = 0.70046
Q = 0.49064
R = 0.34367
S = 0.24073

$$\left(\frac{N_2+1}{N_1+1}\right)^{1} - J = 0.00000$$
$$\left(\frac{N_2+1}{N_1+1}\right)^{2} - K = 0.00000$$
$$\left(\frac{N_2+1}{N_1+1}\right)^{3} - L = 0.00000$$
$$\left(\frac{N_2+1}{N_1+1}\right)^{4} - M = 0.00000$$
$$\left(\frac{N_2+1}{N_1+1}\right)^{5} - N = 0.00000$$

$$\left(\frac{N_2+1}{N_1+1}\right)^{-1} - P = 0.00000$$
$$\left(\frac{N_2+1}{N_1+1}\right)^{-2} - Q = 0.00000$$
$$\left(\frac{N_2+1}{N_1+1}\right)^{-3} - R = 0.00000$$
$$\left(\frac{N_2+1}{N_1+1}\right)^{-4} - S = 0.00000$$

$AB := 1$
$N_1 := 1.46762$

$N_2 := 2.78261$

090912-3a

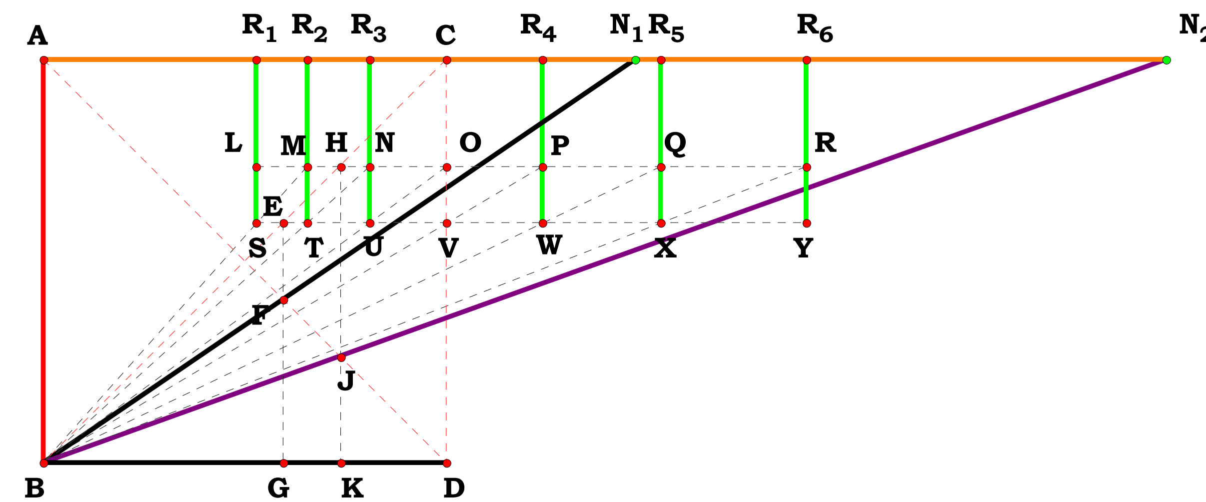
$$DG := \frac{1}{N_1 + 1} \qquad DK := \frac{1}{N_2 + 1}$$

$$DO := 1 - DK \qquad DV := 1 - DG$$

$$R_4 := \frac{1}{DV} \cdot DO \qquad R_5 := \frac{R_4}{DV} \cdot DO \qquad R_6 := \frac{R_5}{DV} \cdot DO$$

$$R_3 := \frac{1}{DO} \cdot DV \qquad R_2 := \frac{R_3}{DO} \cdot DV \qquad R_1 := \frac{R_2}{DO} \cdot DV$$

$N_1 = 1.46762$
$N_2 = 2.78261$
$R_1 = 0.52847$
$R_2 = 0.65365$
$R_3 = 0.80849$
$R_4 = 1.23688$
$R_5 = 1.52986$
$R_6 = 1.89225$



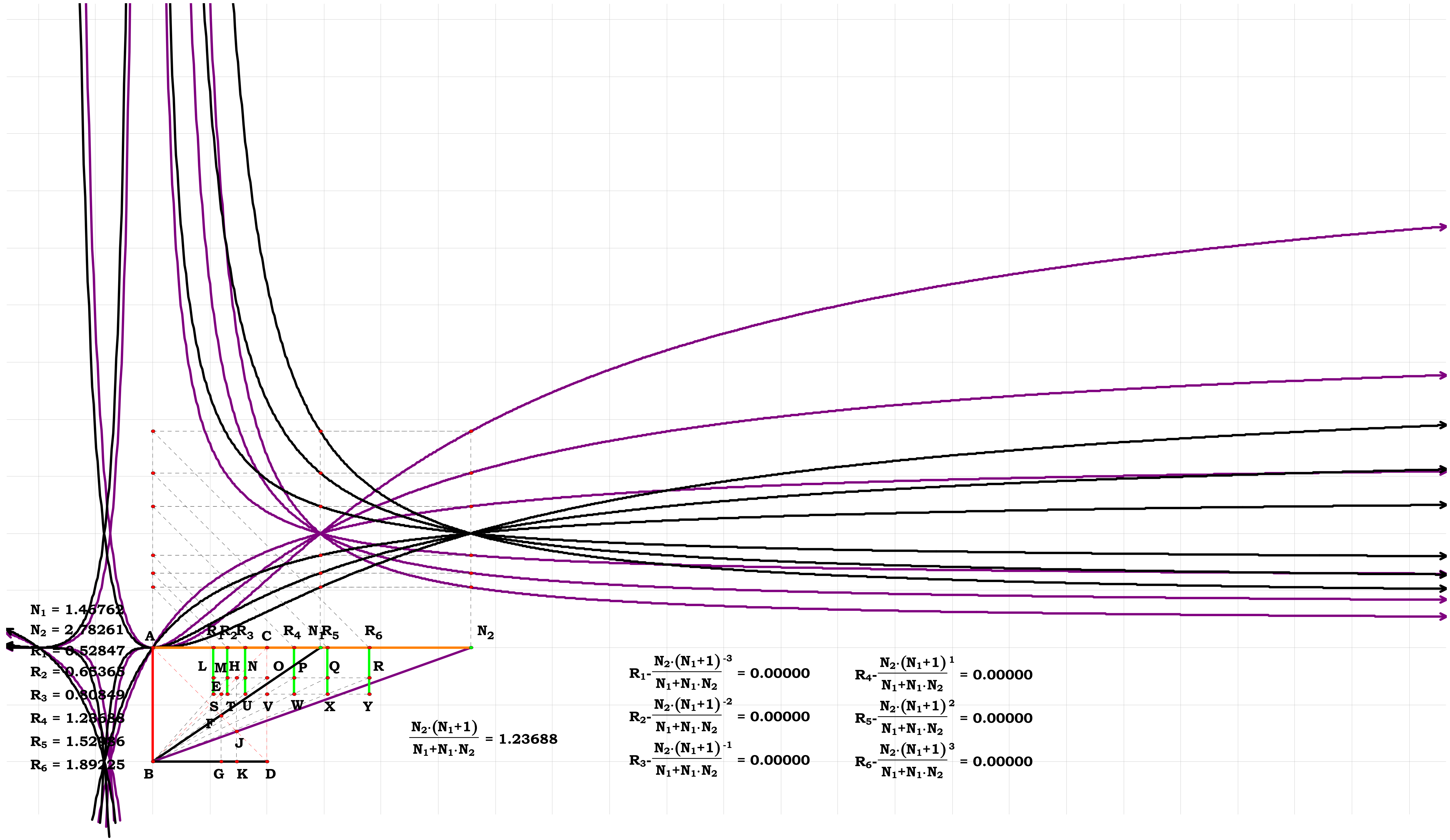
$$R_4 - \frac{N_2 \cdot (N_1 + 1)}{N_1 + N_1 \cdot N_2} = 0 \qquad R_5 - \frac{N_2^{\,2} \cdot (N_1 + 1)^2}{N_1^{\,2} \cdot (N_2 + 1)^2} = 0 \qquad R_6 - \frac{N_2^{\,3} \cdot (N_1 + 1)^3}{N_1^{\,3} \cdot (N_2 + 1)^3} = 0$$

$$R_3 - \frac{N_1 \cdot (N_2 + 1)}{N_2 + N_1 \cdot N_2} = 0 \qquad R_2 - \frac{N_1^{\,2} \cdot (N_2 + 1)^2}{N_2^{\,2} \cdot (N_1 + 1)^2} = 0 \qquad R_1 - \frac{N_1^{\,3} \cdot (N_2 + 1)^3}{N_2^{\,3} \cdot (N_1 + 1)^3} = 0$$

After reducing, reformating and reording:

$$R_1 - \left[\frac{N_2 \cdot (N_1 + 1)}{N_1 + N_1 \cdot N_2}\right]^{-3} = 0 \qquad R_2 - \left[\frac{N_2 \cdot (N_1 + 1)}{N_1 + N_1 \cdot N_2}\right]^{-2} = 0 \qquad R_3 - \left[\frac{N_2 \cdot (N_1 + 1)}{N_1 + N_1 \cdot N_2}\right]^{-1} = 0 \qquad AB - \left[\frac{N_2 \cdot (N_1 + 1)}{N_1 + N_1 \cdot N_2}\right]^{0} = 0$$

$$R_4 - \left[\frac{N_2 \cdot (N_1 + 1)}{N_1 + N_1 \cdot N_2}\right]^{1} = 0 \qquad R_5 - \left[\frac{N_2 \cdot (N_1 + 1)}{N_1 + N_1 \cdot N_2}\right]^{2} = 0 \qquad R_6 - \left[\frac{N_2 \cdot (N_1 + 1)}{N_1 + N_1 \cdot N_2}\right]^{3} = 0$$



N1 = 1.46762
N2 = 2.78261
R1 = 0.52847
R2 = 0.65365
R3 = 0.80849
R4 = 1.23688
R5 = 1.52986
R6 = 1.89225
A
B
C
D
E
F
G
H
J
K
L
M
N
O
P
Q
R
S
T
U
V
W
X
Y
N1
N2
R1 R2 R3 R4 R5 R6
N2·(N1+1) / (N1+N1·N2) = 1.23688
R1 - N2·(N1+1)^-3 / (N1+N1·N2) = 0.00000
R2 - N2·(N1+1)^-2 / (N1+N1·N2) = 0.00000
R3 - N2·(N1+1)^-1 / (N1+N1·N2) = 0.00000
R4 - N2·(N1+1)^1 / (N1+N1·N2) = 0.00000
R5 - N2·(N1+1)^2 / (N1+N1·N2) = 0.00000
R6 - N2·(N1+1)^3 / (N1+N1·N2) = 0.00000

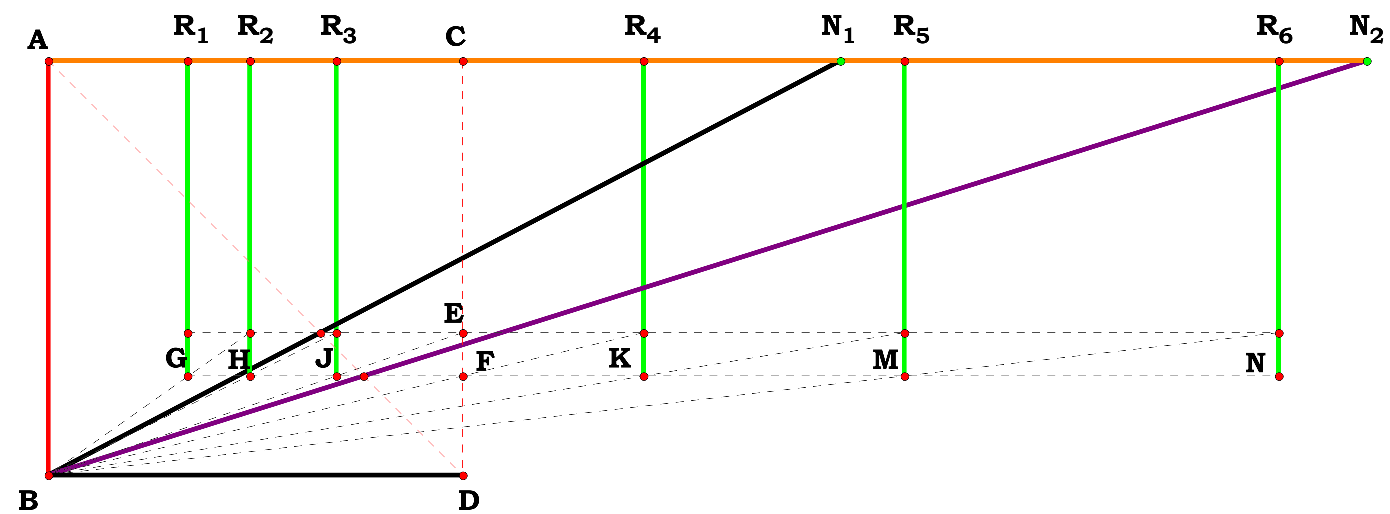
090912-3b

$AB := 1$

$N_1 := 1.90778$

$N_2 := 3.17746$

$N_1 = 1.90778$
$N_2 = 3.17746$
$R_1 = 0.33725$
$R_2 = 0.48451$
$R_3 = 0.69606$
$R_4 = 1.43665$
$R_5 = 2.06396$
$R_6 = 2.96518$



$$DE := \frac{1}{N_1+1} \qquad DF := \frac{1}{N_2+1}$$

$$R_4 := \frac{1}{DF}\cdot DE \qquad R_5 := \frac{R_4}{DF}\cdot DE \qquad R_6 := \frac{R_5}{DF}\cdot DE$$

$$R_3 := \frac{1}{DE}\cdot DF \qquad R_2 := \frac{R_3}{DE}\cdot DF \qquad R_1 := \frac{R_2}{DE}\cdot DF$$

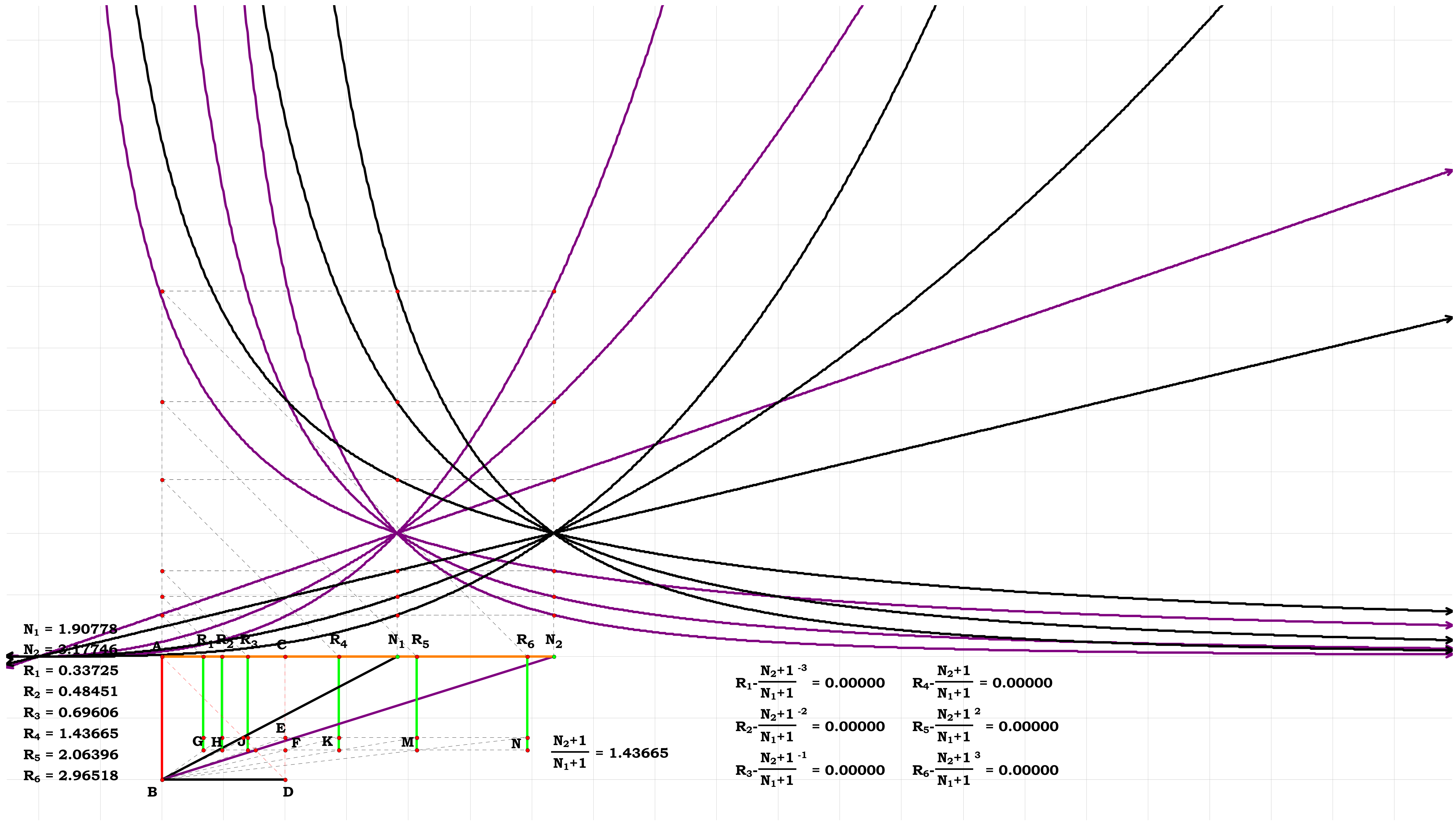
$$R_4 - \frac{N_2+1}{N_1+1} = 0 \qquad R_5 - \frac{(N_2+1)^2}{(N_1+1)^2} = 0 \qquad R_6 - \frac{(N_2+1)^3}{(N_1+1)^3} = 0$$

$$R_3 - \frac{N_1+1}{N_2+1} = 0 \qquad R_2 - \frac{(N_1+1)^2}{(N_2+1)^2} = 0 \qquad R_1 - \frac{(N_1+1)^3}{(N_2+1)^3} = 0$$

After reducing, reformating and reording:

$$R_1 - \left(\frac{N_2+1}{N_1+1}\right)^{-3} = 0 \qquad R_2 - \left(\frac{N_2+1}{N_1+1}\right)^{-2} = 0 \qquad R_3 - \left(\frac{N_2+1}{N_1+1}\right)^{-1} = 0 \qquad AB - \left(\frac{N_2+1}{N_1+1}\right)^{0} = 0$$

$$R_4 - \left(\frac{N_2+1}{N_1+1}\right)^{1} = 0 \qquad R_5 - \left[\frac{(N_2+1)}{(N_1+1)}\right]^{2} = 0 \qquad R_6 - \left[\frac{(N_2+1)}{(N_1+1)}\right]^{3} = 0$$



N_1 = 1.90778
N_2 = 3.17746
R_1 = 0.33725
R_2 = 0.48451
R_3 = 0.69606
R_4 = 1.43665
R_5 = 2.06396
R_6 = 2.96518
A
R_1 R_2 R_3
C
R_4
N_1 R_5
R_6 N_2
G H J
E
F
K
M
N
B
D
$\frac{N_2+1}{N_1+1}$ = 1.43665
$R_1 - \frac{N_2+1}{N_1+1}^{-3}$ = 0.00000
$R_2 - \frac{N_2+1}{N_1+1}^{-2}$ = 0.00000
$R_3 - \frac{N_2+1}{N_1+1}^{-1}$ = 0.00000
$R_4 - \frac{N_2+1}{N_1+1}$ = 0.00000
$R_5 - \frac{N_2+1}{N_1+1}^{2}$ = 0.00000
$R_6 - \frac{N_2+1}{N_1+1}^{3}$ = 0.00000

090912-4

This is identical to the last figure, however, the series is going to start from the units other operational tail.

Looking at an exponential series, one would not think that it had a point of origin, however: In regard to the point of origin for any exponential series, one can, by viewing the waves of a series, find the starting points, or root of any series, or in short, if one knows two or more waves of an exponential series, one can figure out as much of the series as they like from its root; especially if the root is other than the point of origin. If one had two consecutive points of a series, one could simply place a square on it and draw the coversion to the origin and then use squares to plot each of the series, etc.

$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2} = 0.83725$$

$$\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1} = 1.12397$$

A = 0.83725
B = 0.94105
C = 1.05771
D = 1.18884
E = 1.33622

F = 0.74490
G = 0.66274
H = 0.58964
I = 0.52461

$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2}\cdot\left(\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1}\right)^{0} - A = 0.00000$$

$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2}\cdot\left(\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1}\right)^{1} - B = 0.00000$$

$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2}\cdot\left(\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1}\right)^{2} - C = 0.00000$$

$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2}\cdot\left(\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1}\right)^{3} - D = 0.00000$$

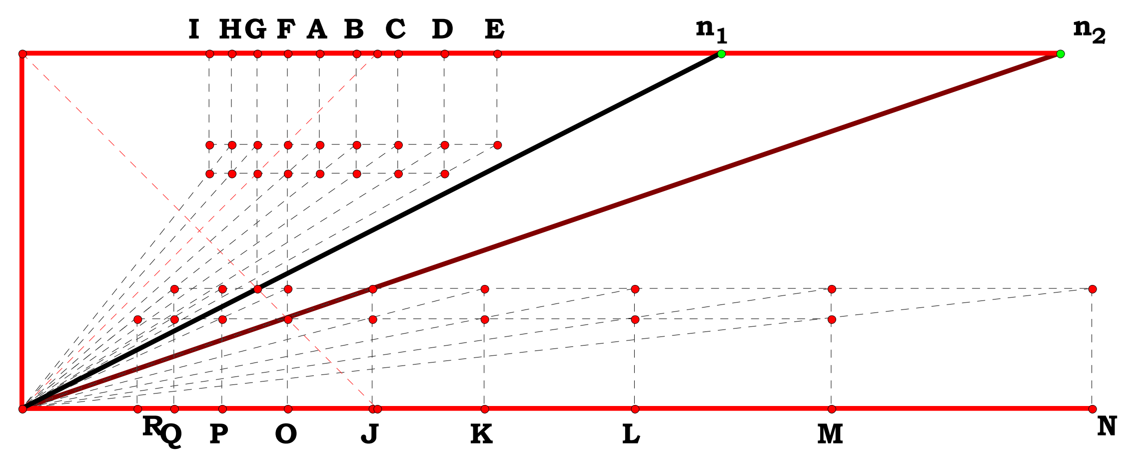
$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2}\cdot\left(\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1}\right)^{4} - E = 0.00000$$

$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2}\cdot\left(\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1}\right)^{-1} - F = 0.00000$$

$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2}\cdot\left(\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1}\right)^{-2} - G = 0.00000$$

$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2}\cdot\left(\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1}\right)^{-3} - H = 0.00000$$

$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2}\cdot\left(\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1}\right)^{-4} - I = 0.00000$$



$$\frac{N_2}{N_1+1} = 0.98482$$

$$\frac{N_2+1}{N_1+1} = 1.32208$$

$N_1 = 1.96510$
$N_2 = 2.92011$

J = 0.98482
K = 1.30202
L = 1.72138
M = 2.27580
N = 3.00879

O = 0.74490
P = 0.56343
Q = 0.42617
R = 0.32235

$$\frac{N_2}{N_1+1}\cdot\left(\frac{N_2+1}{N_1+1}\right)^{0} - J = 0.00000$$

$$\frac{N_2}{N_1+1}\cdot\left(\frac{N_2+1}{N_1+1}\right)^{1} - K = 0.00000$$

$$\frac{N_2}{N_1+1}\cdot\left(\frac{N_2+1}{N_1+1}\right)^{2} - L = 0.00000$$

$$\frac{N_2}{N_1+1}\cdot\left(\frac{N_2+1}{N_1+1}\right)^{3} - M = 0.00000$$

$$\frac{N_2}{N_1+1}\cdot\left(\frac{N_2+1}{N_1+1}\right)^{4} - N = 0.00000$$

$$\frac{N_2}{N_1+1}\cdot\left(\frac{N_2+1}{N_1+1}\right)^{-1} - O = 0.00000$$

$$\frac{N_2}{N_1+1}\cdot\left(\frac{N_2+1}{N_1+1}\right)^{-2} - P = 0.00000$$

$$\frac{N_2}{N_1+1}\cdot\left(\frac{N_2+1}{N_1+1}\right)^{-3} - Q = 0.00000$$

$$\frac{N_2}{N_1+1}\cdot\left(\frac{N_2+1}{N_1+1}\right)^{-4} - R = 0.00000$$

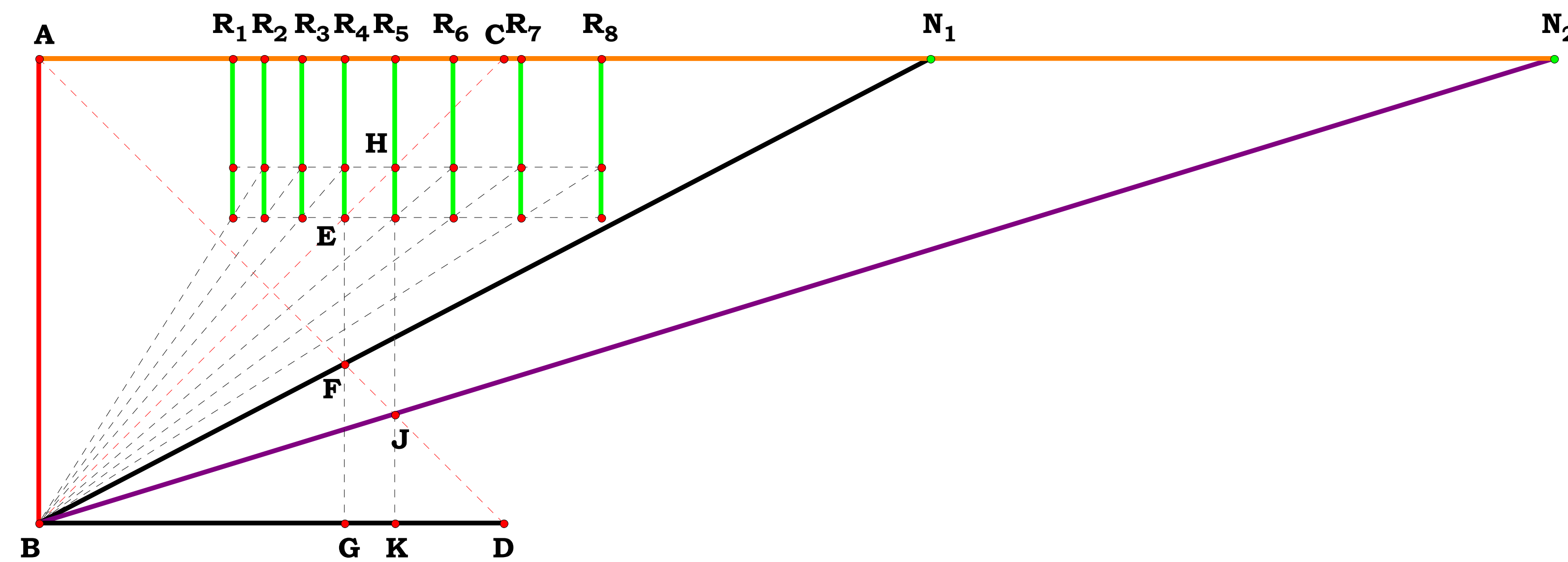
090912-4A

$AB := 1$

$N_1 := 1.91766$

$N_2 := 3.25942$

$N_1 = 1.91766$
$N_2 = 3.25942$
$R_1 = 0.41646$
$R_2 = 0.48488$
$R_3 = 0.56453$
$R_4 = 0.65726$
$R_5 = 0.76523$
$R_6 = 0.89093$
$R_7 = 1.03728$
$R_8 = 1.20767$



$$EG := 1 - \frac{1}{N_1 + 1} \qquad HK := 1 - \frac{1}{N_2 + 1}$$

$$R_4 := EG \qquad R_5 := HK$$

$$R_6 := \frac{R_5}{EG} \cdot HK \qquad R_7 := \frac{R_6}{EG} \cdot HK \qquad R_8 := \frac{R_7}{EG} \cdot HK$$

$$R_3 := \frac{R_4}{HK} \cdot EG \qquad R_2 := \frac{R_3}{HK} \cdot EG \qquad R_1 := \frac{R_2}{HK} \cdot EG$$

$$R_4 - \frac{N_1}{N_1 + 1} = 0 \qquad R_5 - \frac{N_2}{N_2 + 1} = 0 \qquad \frac{HK}{EG} - \frac{N_2 \cdot (N_1 + 1)}{N_1 \cdot (N_2 + 1)} = 0 \qquad \frac{N_1}{N_1 + 1} \cdot \frac{N_2 \cdot (N_1 + 1)}{N_1 \cdot (N_2 + 1)} = 0.765226$$

One might make an argument that every series should comprise two distinct parts, one, the starting point of the series, and the other the index, as in the following. I would imagine that such an arrangement would make series a whole lot easier to work with.

$$R_1 - \frac{N_1}{N_1 + 1} \cdot \left[\frac{N_2 \cdot (N_1 + 1)}{N_1 \cdot (N_2 + 1)}\right]^{-3} = 0 \qquad R_2 - \frac{N_1}{N_1 + 1} \cdot \left[\frac{N_2 \cdot (N_1 + 1)}{N_1 \cdot (N_2 + 1)}\right]^{-2} = 0 \qquad R_3 - \frac{N_1}{N_1 + 1} \cdot \left[\frac{N_2 \cdot (N_1 + 1)}{N_1 \cdot (N_2 + 1)}\right]^{-1} = 0$$

$$R_4 - \frac{N_1}{N_1 + 1} \cdot \left[\frac{N_2 \cdot (N_1 + 1)}{N_1 \cdot (N_2 + 1)}\right]^{0} = 0 \qquad R_5 - \frac{N_1}{N_1 + 1} \cdot \frac{N_2 \cdot (N_1 + 1)}{N_1 \cdot (N_2 + 1)} = 0 \qquad \frac{N_1}{N_1 + 1} \cdot \frac{N_2 \cdot (N_1 + 1)}{N_1 \cdot (N_2 + 1)} = 0.765226$$

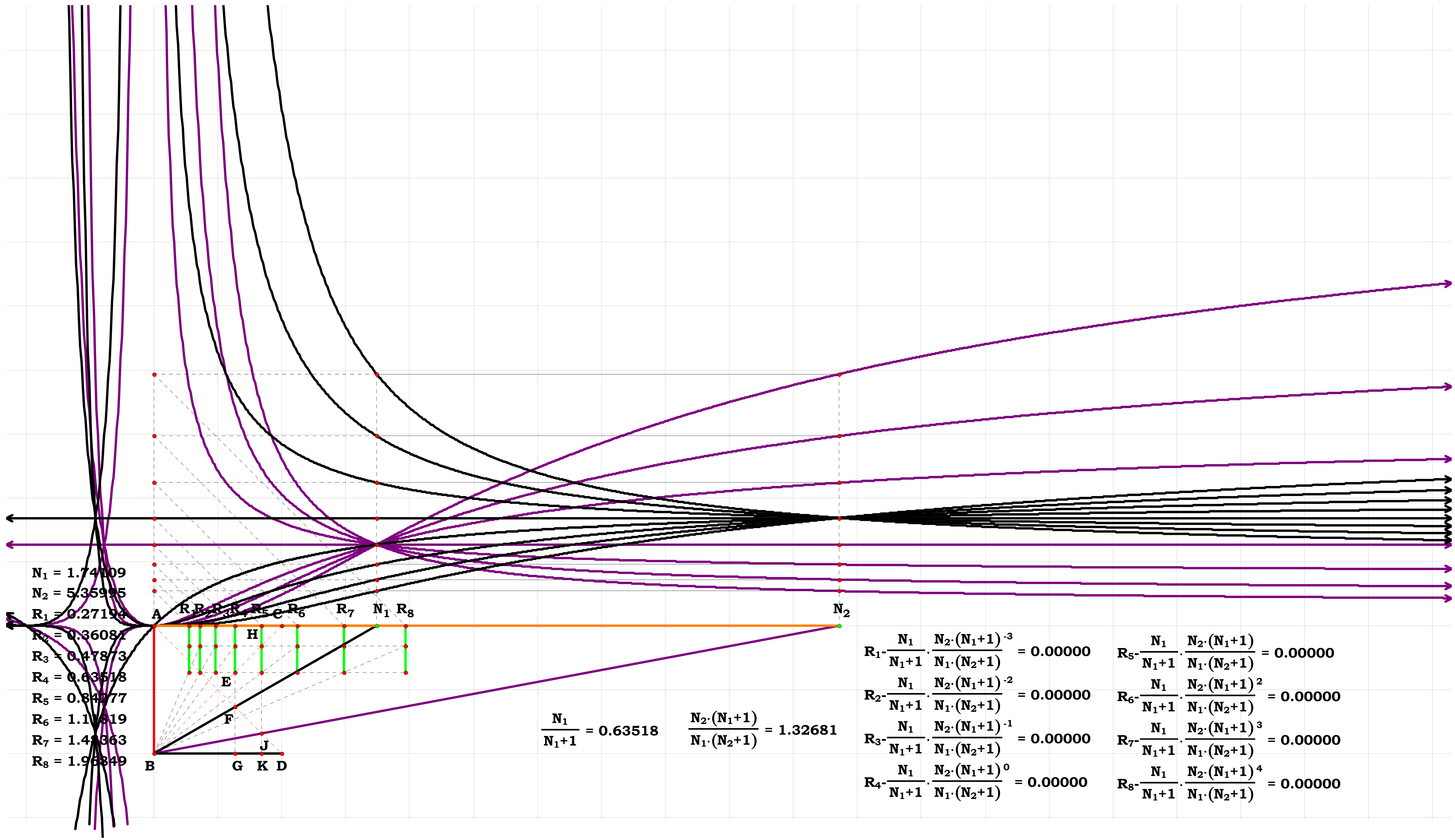
$$R_6 - \frac{N_1}{N_1 + 1} \cdot \left[\frac{N_2 \cdot (N_1 + 1)}{N_1 \cdot (N_2 + 1)}\right]^{2} = 0 \qquad R_7 - \frac{N_1}{N_1 + 1} \cdot \left[\frac{N_2 \cdot (N_1 + 1)}{N_1 \cdot (N_2 + 1)}\right]^{3} = 0 \qquad R_8 - \frac{N_1}{N_1 + 1} \cdot \left[\frac{N_2 \cdot (N_1 + 1)}{N_1 \cdot (N_2 + 1)}\right]^{4} = 0$$

$R_1 = 0.416465$ $\qquad R_5 = 0.765226$

$R_2 = 0.484876$ $\qquad R_6 = 0.890928$

$R_3 = 0.564526$ $\qquad R_7 = 1.037279$

$R_4 = 0.65726$ $\qquad R_8 = 1.207671$



$N_1 = 1.74109$
$N_2 = 5.35995$
$R_1 = 0.27194$
$R_2 = 0.36081$
$R_3 = 0.47873$
$R_4 = 0.63518$
$R_5 = 0.84277$
$R_6 = 1.11819$
$R_7 = 1.48363$
$R_8 = 1.96849$
A
R_1 R_2 R_3 R_4 R_5 C R_6 R_7 N_1 R_8
N_2
H
E
F
J
B G K D
$\frac{N_1}{N_1+1} = 0.63518$
$\frac{N_2 \cdot (N_1+1)}{N_1 \cdot (N_2+1)} = 1.32681$
$R_1 - \frac{N_1}{N_1+1} \cdot \frac{N_2 \cdot (N_1+1)}{N_1 \cdot (N_2+1)}^{-3} = 0.00000$
$R_2 - \frac{N_1}{N_1+1} \cdot \frac{N_2 \cdot (N_1+1)}{N_1 \cdot (N_2+1)}^{-2} = 0.00000$
$R_3 - \frac{N_1}{N_1+1} \cdot \frac{N_2 \cdot (N_1+1)}{N_1 \cdot (N_2+1)}^{-1} = 0.00000$
$R_4 - \frac{N_1}{N_1+1} \cdot \frac{N_2 \cdot (N_1+1)}{N_1 \cdot (N_2+1)}^{0} = 0.00000$
$R_5 - \frac{N_1}{N_1+1} \cdot \frac{N_2 \cdot (N_1+1)}{N_1 \cdot (N_2+1)} = 0.00000$
$R_6 - \frac{N_1}{N_1+1} \cdot \frac{N_2 \cdot (N_1+1)}{N_1 \cdot (N_2+1)}^{2} = 0.00000$
$R_7 - \frac{N_1}{N_1+1} \cdot \frac{N_2 \cdot (N_1+1)}{N_1 \cdot (N_2+1)}^{3} = 0.00000$
$R_8 - \frac{N_1}{N_1+1} \cdot \frac{N_2 \cdot (N_1+1)}{N_1 \cdot (N_2+1)}^{4} = 0.00000$

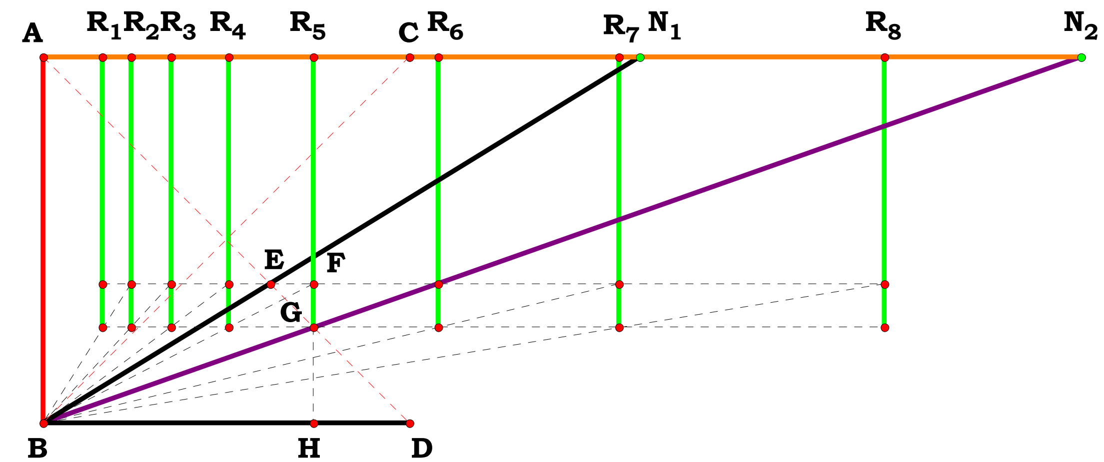
090912-4B

$AB := 1$

$N_1 := 1.62767$

$N_2 := 2.83274$

$N_1 = 1.62767$
$N_2 = 2.83274$
$R_1 = 0.16328$
$R_2 = 0.23817$
$R_3 = 0.34739$
$R_4 = 0.50671$
$R_5 = 0.73909$
$R_6 = 1.07805$
$R_7 = 1.57245$
$R_8 = 2.29359$



$$FH := \frac{1}{N_1 + 1} \qquad GH := \frac{1}{N_2 + 1} \qquad R_5 := 1 - GH$$

$$R_6 := \frac{R_5}{GH} \cdot FH \qquad R_7 := \frac{R_6}{GH} \cdot FH \qquad R_8 := \frac{R_7}{GH} \cdot FH$$

$$R_4 := \frac{R_5}{FH} \cdot GH \qquad R_3 := \frac{R_4}{FH} \cdot GH \qquad R_2 := \frac{R_3}{FH} \cdot GH \qquad R_1 := \frac{R_2}{FH} \cdot GH$$

$$R_5 - \frac{N_2}{N_2 + 1} = 0 \qquad \frac{FH}{GH} - \frac{N_2 + 1}{N_1 + 1} = 0$$

$$R_1 - \frac{N_2}{N_2 + 1} \cdot \left(\frac{N_2 + 1}{N_1 + 1}\right)^{-4} = 0 \qquad R_2 - \frac{N_2}{N_2 + 1} \cdot \left(\frac{N_2 + 1}{N_1 + 1}\right)^{-3} = 0 \qquad R_3 - \frac{N_2}{N_2 + 1} \cdot \left(\frac{N_2 + 1}{N_1 + 1}\right)^{-2} = 0 \qquad R_4 - \frac{N_2}{N_2 + 1} \cdot \left(\frac{N_2 + 1}{N_1 + 1}\right)^{-1} = 0$$

$$R_5 - \frac{N_2}{N_2 + 1} \cdot \left(\frac{N_2 + 1}{N_1 + 1}\right)^{0} = 0 \qquad R_6 - \frac{N_2}{N_2 + 1} \cdot \left(\frac{N_2 + 1}{N_1 + 1}\right)^{1} = 0 \qquad R_7 - \frac{N_2}{N_2 + 1} \cdot \left(\frac{N_2 + 1}{N_1 + 1}\right)^{2} = 0 \qquad R_8 - \frac{N_2}{N_2 + 1} \cdot \left(\frac{N_2 + 1}{N_1 + 1}\right)^{3} = 0$$

$R_1 = 0.163284$

$R_2 = 0.238167$

$R_3 = 0.347392$

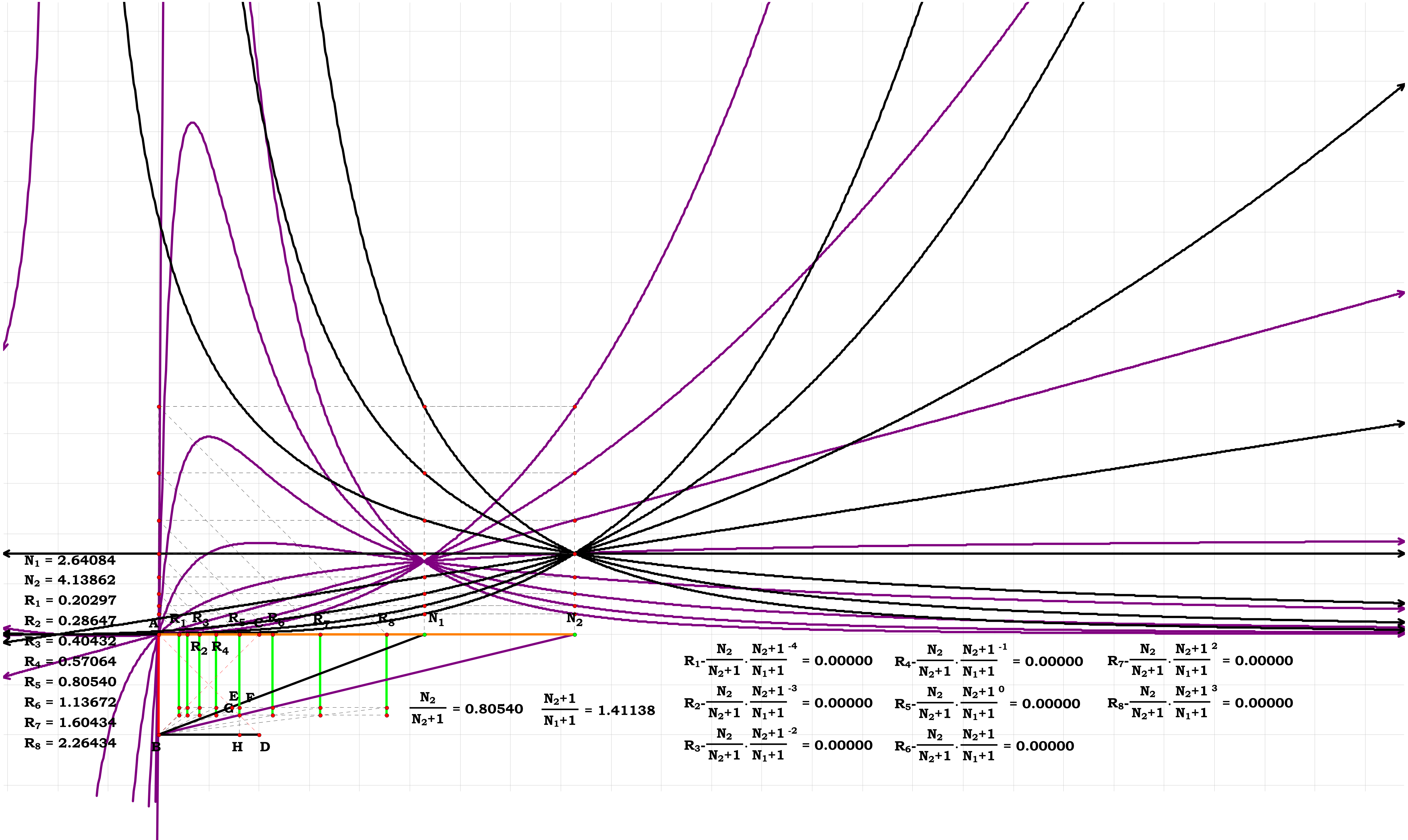
$R_4 = 0.506709$

$R_5 = 0.73909$

$R_6 = 1.078043$

$R_7 = 1.572441$

$R_8 = 2.293575$



N_1 = 2.64084
N_2 = 4.13862
R_1 = 0.20297
R_2 = 0.28647
R_3 = 0.40432
R_4 = 0.57064
R_5 = 0.80540
R_6 = 1.13672
R_7 = 1.60434
R_8 = 2.26434
A
B
C
D
E
F
G
H
R_1 R_2 R_3 R_4 R_5 R_6 R_7 R_8
N_1
N_2
$\frac{N_2}{N_2+1}$ = 0.80540
$\frac{N_2+1}{N_1+1}$ = 1.41138
$R_1 - \frac{N_2}{N_2+1} \cdot \frac{N_2+1}{N_1+1}^{-4}$ = 0.00000
$R_2 - \frac{N_2}{N_2+1} \cdot \frac{N_2+1}{N_1+1}^{-3}$ = 0.00000
$R_3 - \frac{N_2}{N_2+1} \cdot \frac{N_2+1}{N_1+1}^{-2}$ = 0.00000
$R_4 - \frac{N_2}{N_2+1} \cdot \frac{N_2+1}{N_1+1}^{-1}$ = 0.00000
$R_5 - \frac{N_2}{N_2+1} \cdot \frac{N_2+1}{N_1+1}^{0}$ = 0.00000
$R_6 - \frac{N_2}{N_2+1} \cdot \frac{N_2+1}{N_1+1}$ = 0.00000
$R_7 - \frac{N_2}{N_2+1} \cdot \frac{N_2+1}{N_1+1}^{2}$ = 0.00000
$R_8 - \frac{N_2}{N_2+1} \cdot \frac{N_2+1}{N_1+1}^{3}$ = 0.00000

090912-5

B = 1.31080
C = 1.71820
D = 2.25222
E = 2.95221
F = 3.86977
G = 5.07250

$$\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)} = 1.31080 \qquad \left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^1 - B = 0.00000$$

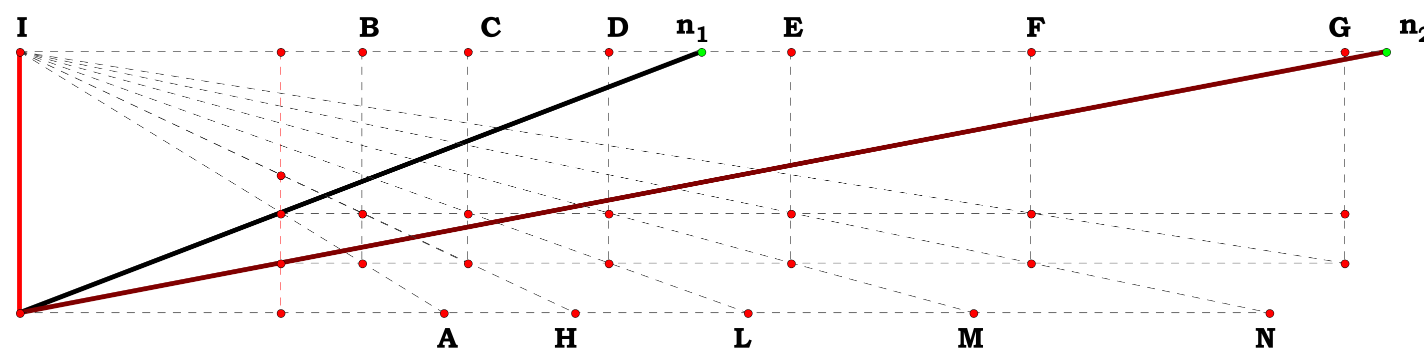
$$\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^2 = 1.71820 \qquad \left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^2 - C = 0.00000$$

$$\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^3 = 2.25222 \qquad \left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^3 - D = 0.00000$$

$$\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^4 = 2.95221 \qquad \left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^4 - E = 0.00000$$

$$\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^5 = 3.86977 \qquad \left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^5 - F = 0.00000$$

$$\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^6 = 5.07250 \qquad \left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^6 - G = 0.00000$$



$$\frac{N_1}{N_1-1} - A = 0.00000$$

$$\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2} = 2.12423$$

$N_1 = 2.61146$
$N_2 = 5.23175$

A = 1.62056
H = 2.12423
L = 2.78444
M = 3.64985
N = 4.78423

$$\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^{-1} = 1.62056 \qquad \left(\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^{-1}\right) - A = 0.00000$$

$$\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^{0} = 2.12423 \qquad \left(\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^{0}\right) - H = 0.00000$$

$$\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^{1} = 2.78444 \qquad \left(\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^{1}\right) - L = 0.00000$$

$$\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^{2} = 3.64985 \qquad \left(\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^{2}\right) - M = 0.00000$$

$$\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^{3} = 4.78423 \qquad \left(\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^{3}\right) - N = 0.00000$$

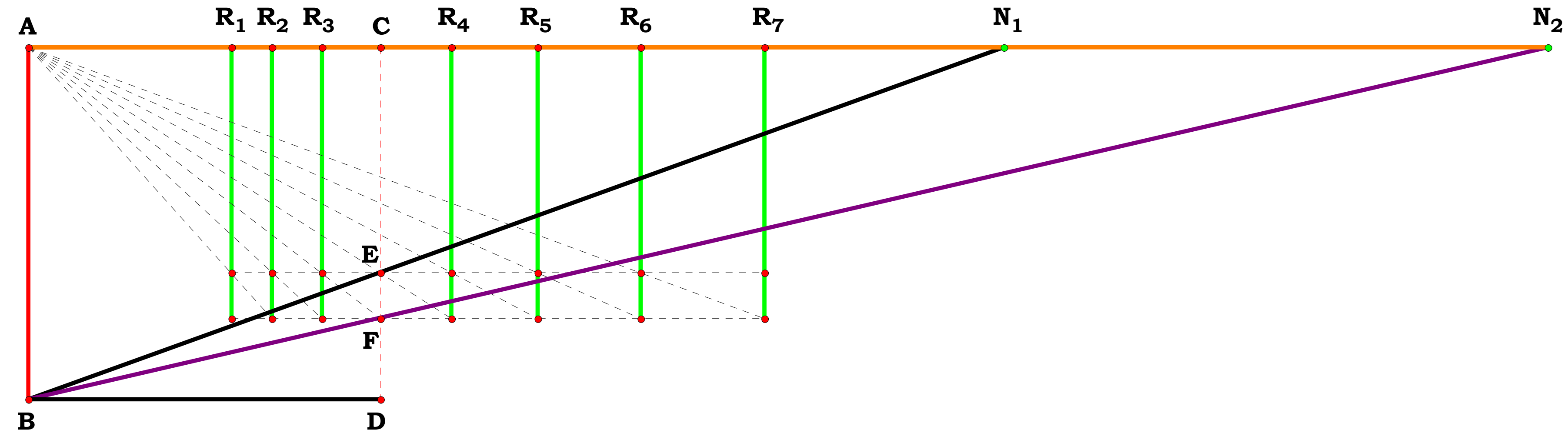
090912-5a

$AB := 1$

$N_1 := 2.76966$

$N_2 := 4.31164$

$N_1 = 2.76966$
$N_2 = 4.31164$
$R_1 = 0.57569$
$R_2 = 0.69203$
$R_3 = 0.83188$
$R_4 = 1.20209$
$R_5 = 1.44502$
$R_6 = 1.73705$
$R_7 = 2.08809$



$DE := \dfrac{1}{N_1} \qquad DF := \dfrac{1}{N_2}$

$R_3 := \dfrac{1}{1-DF}\cdot(1-DE) \qquad R_4 := \dfrac{1}{1-DE}\cdot(1-DF)$

$R_2 := \dfrac{R_3}{1-DF}\cdot(1-DE) \qquad R_1 := \dfrac{R_2}{1-DF}\cdot(1-DE)$

$R_5 := \dfrac{R_4}{1-DE}\cdot(1-DF) \qquad R_6 := \dfrac{R_5}{1-DE}\cdot(1-DF) \qquad R_7 := \dfrac{R_6}{1-DE}\cdot(1-DF)$

$R_1 = 0.575689 \qquad R_5 = 1.445022$

$R_2 = 0.692031 \qquad R_6 = 1.737048$

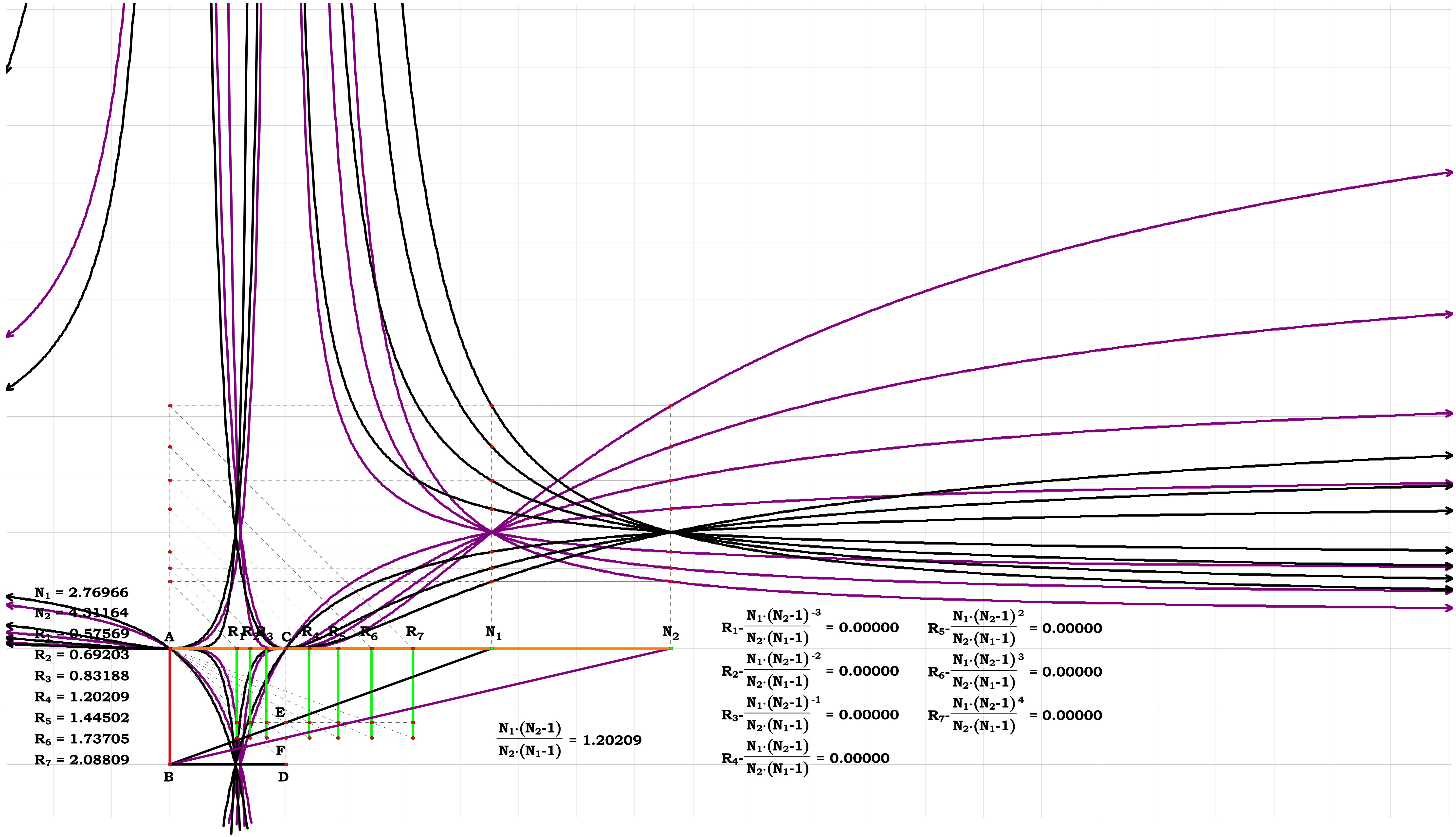
$R_3 = 0.831884 \qquad R_7 = 2.088089$

$R_4 = 1.202091$

$$R_4 - \frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)} = 0$$

$$R_1 - \left[\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right]^{-3} = 0 \qquad R_2 - \left[\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right]^{-2} = 0 \qquad R_3 - \left[\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right]^{-1} = 0 \qquad AB - \left[\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right]^{0} = 0$$

$$R_4 - \left[\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right]^{1} = 0 \qquad R_5 - \left[\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right]^{2} = 0 \qquad R_6 - \left[\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right]^{3} = 0 \qquad R_7 - \left[\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right]^{4} = 0$$



N1 = 2.76966
N2 = 4.31164
R1 = 0.57569
R2 = 0.69203
R3 = 0.83188
R4 = 1.20209
R5 = 1.44502
R6 = 1.73705
R7 = 2.08809
A
B
C
D
E
F
R1 R2 R3 R4 R5 R6 R7 N1 N2
$\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)} = 1.20209$
$R_1-\frac{N_1\cdot(N_2-1)^{-3}}{N_2\cdot(N_1-1)} = 0.00000$
$R_2-\frac{N_1\cdot(N_2-1)^{-2}}{N_2\cdot(N_1-1)} = 0.00000$
$R_3-\frac{N_1\cdot(N_2-1)^{-1}}{N_2\cdot(N_1-1)} = 0.00000$
$R_4-\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)} = 0.00000$
$R_5-\frac{N_1\cdot(N_2-1)^{2}}{N_2\cdot(N_1-1)} = 0.00000$
$R_6-\frac{N_1\cdot(N_2-1)^{3}}{N_2\cdot(N_1-1)} = 0.00000$
$R_7-\frac{N_1\cdot(N_2-1)^{4}}{N_2\cdot(N_1-1)} = 0.00000$

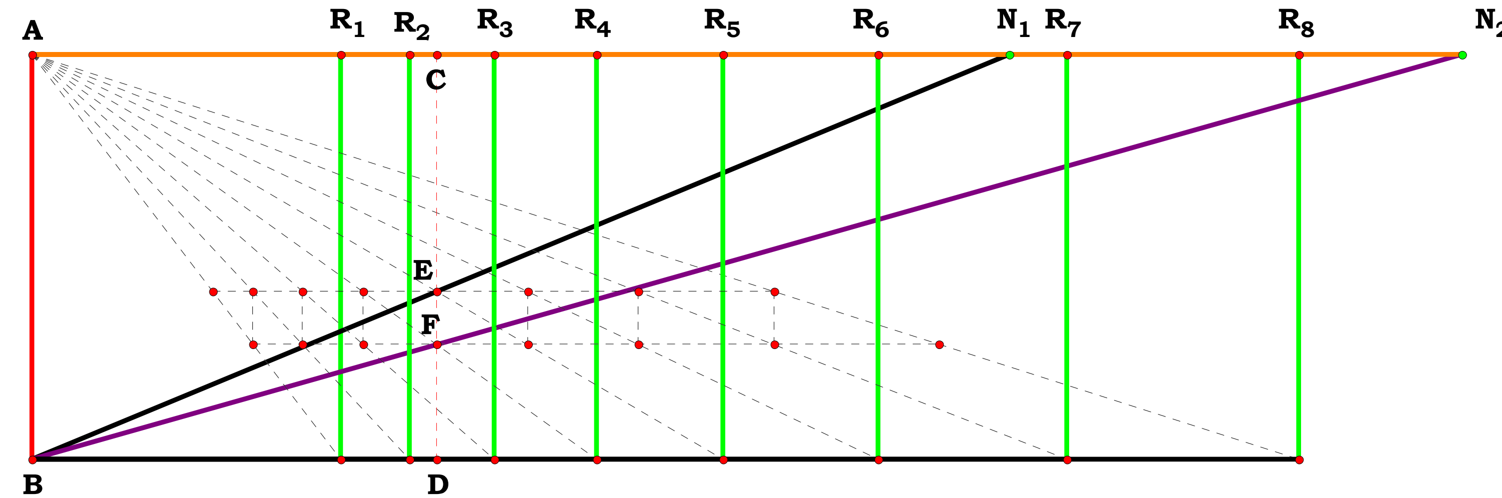
090912-5a

$AB := 1$

$N_1 := 2.41427$

$N_2 := 3.52979$

$N_1 = 2.41427$
$N_2 = 3.52979$
$R_1 = 0.76190$
$R_2 = 0.93215$
$R_3 = 1.14045$
$R_4 = 1.39529$
$R_5 = 1.70708$
$R_6 = 2.08854$
$R_7 = 2.55523$
$R_8 = 3.12622$



$$DE := \frac{1}{N_1} \quad DF := \frac{1}{N_2} \quad R_4 := \frac{1}{1 - DF} \quad R_5 := \frac{1}{1 - DE}$$

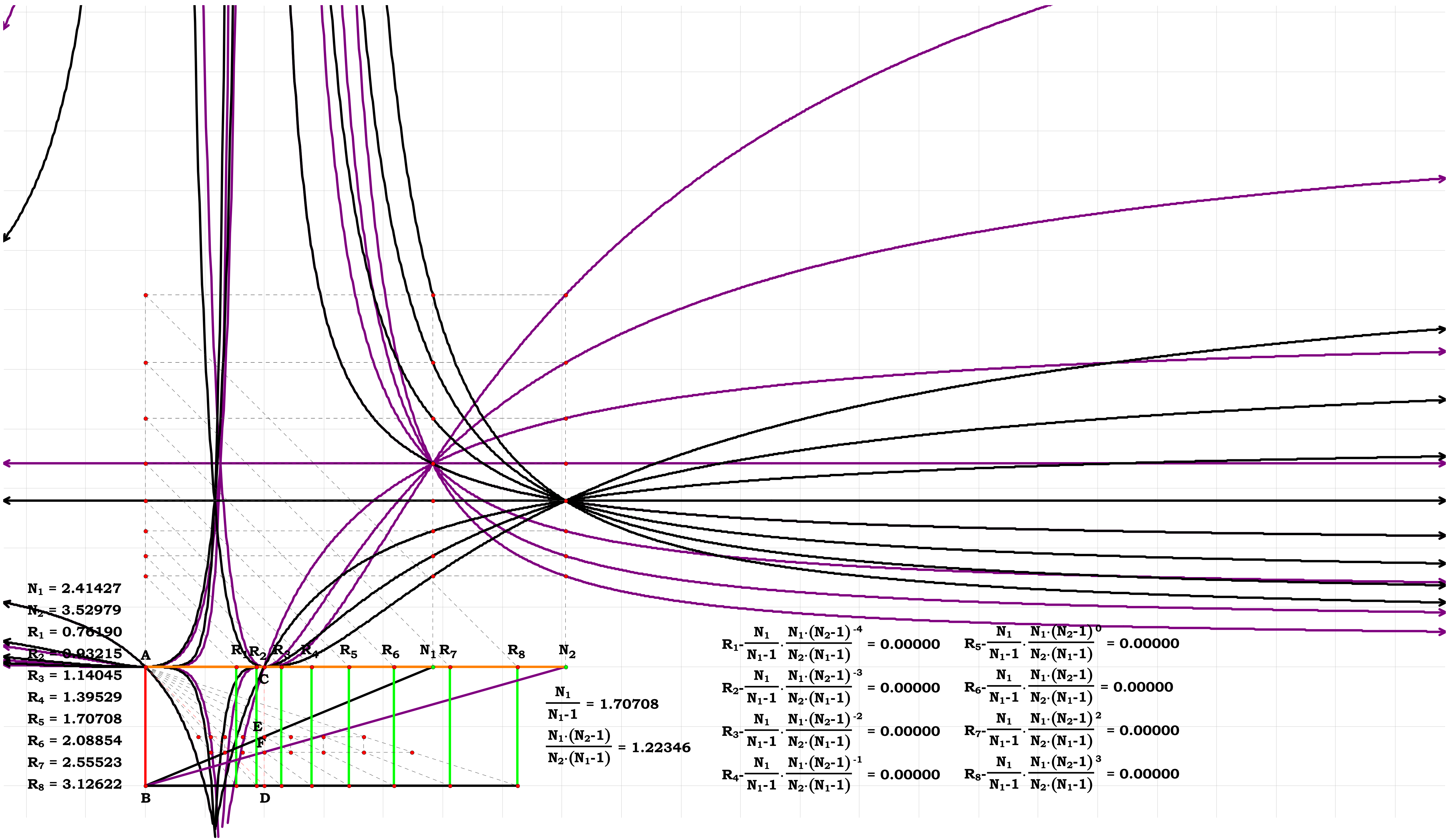
$$R_3 := \frac{R_4 \cdot (1 - DE)}{1 - DF} \quad R_2 := \frac{R_3 \cdot (1 - DE)}{1 - DF} \quad R_1 := \frac{R_2 \cdot (1 - DE)}{1 - DF}$$

$$R_6 := \frac{R_5 \cdot (1 - DF)}{1 - DE} \quad R_7 := \frac{R_6 \cdot (1 - DF)}{1 - DE} \quad R_8 := \frac{R_7 \cdot (1 - DF)}{1 - DE}$$

$$\frac{1 - DF}{1 - DE} - \frac{N_1 \cdot (N_2 - 1)}{N_2 \cdot (N_1 - 1)} = 0$$

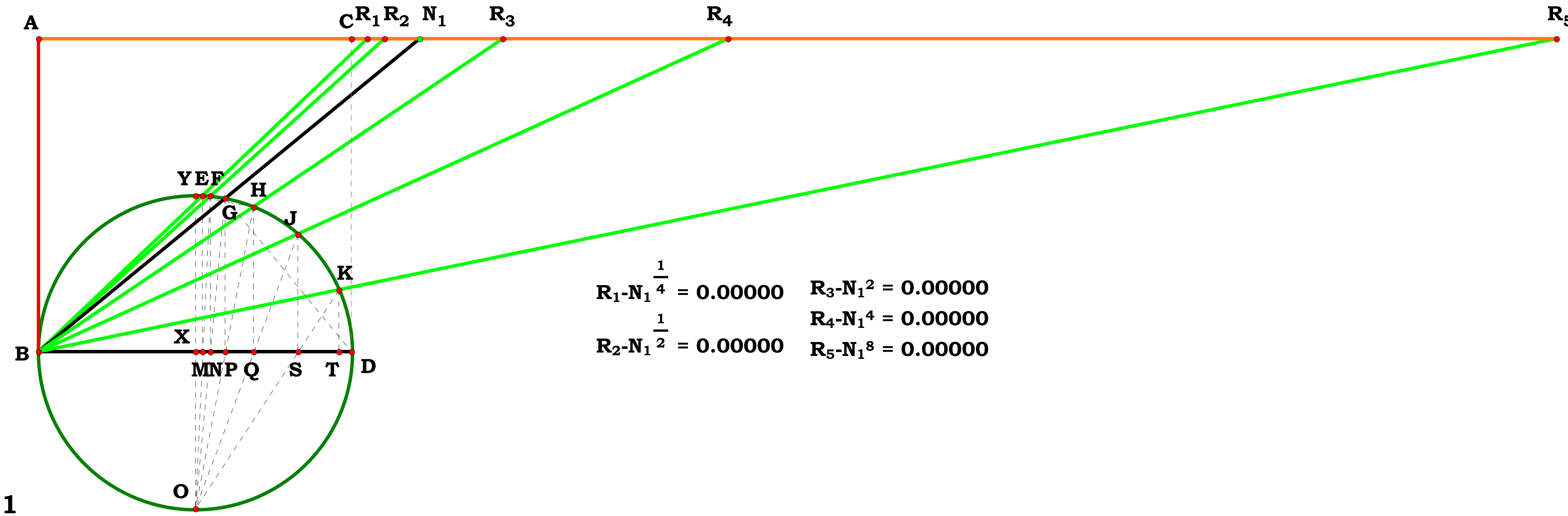
$$R_1 - \frac{N_1}{N_1 - 1} \cdot \left[\frac{N_1 \cdot (N_2 - 1)}{N_2 \cdot (N_1 - 1)}\right]^{-4} = 0 \quad R_2 - \frac{N_1}{N_1 - 1} \cdot \left[\frac{N_1 \cdot (N_2 - 1)}{N_2 \cdot (N_1 - 1)}\right]^{-3} = 0 \quad R_3 - \frac{N_1}{N_1 - 1} \cdot \left[\frac{N_1 \cdot (N_2 - 1)}{N_2 \cdot (N_1 - 1)}\right]^{-2} = 0 \quad R_4 - \frac{N_1}{N_1 - 1} \cdot \left[\frac{N_1 \cdot (N_2 - 1)}{N_2 \cdot (N_1 - 1)}\right]^{-1} = 0$$

$$R_5 - \frac{N_1}{N_1 - 1} \cdot \left[\frac{N_1 \cdot (N_2 - 1)}{N_2 \cdot (N_1 - 1)}\right]^{0} = 0 \quad R_6 - \frac{N_1}{N_1 - 1} \cdot \left[\frac{N_1 \cdot (N_2 - 1)}{N_2 \cdot (N_1 - 1)}\right]^{1} = 0 \quad R_7 - \frac{N_1}{N_1 - 1} \cdot \left[\frac{N_1 \cdot (N_2 - 1)}{N_2 \cdot (N_1 - 1)}\right]^{2} = 0 \quad R_8 - \frac{N_1}{N_1 - 1} \cdot \left[\frac{N_1 \cdot (N_2 - 1)}{N_2 \cdot (N_1 - 1)}\right]^{3} = 0$$


$N_1 = 2.41427$
$N_2 = 3.52979$
$R_1 = 0.76190$
$R_2 = 0.93215$
$R_3 = 1.14045$
$R_4 = 1.39529$
$R_5 = 1.70708$
$R_6 = 2.08854$
$R_7 = 2.55523$
$R_8 = 3.12622$
A
B
C
D
E
F
R_1 R_2 R_3 R_4 R_5 R_6 N_1 R_7 R_8 N_2
$\frac{N_1}{N_1-1} = 1.70708$
$\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)} = 1.22346$
$R_1 - \frac{N_1}{N_1-1}\cdot\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^{-4} = 0.00000$
$R_2 - \frac{N_1}{N_1-1}\cdot\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^{-3} = 0.00000$
$R_3 - \frac{N_1}{N_1-1}\cdot\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^{-2} = 0.00000$
$R_4 - \frac{N_1}{N_1-1}\cdot\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^{-1} = 0.00000$
$R_5 - \frac{N_1}{N_1-1}\cdot\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^{0} = 0.00000$
$R_6 - \frac{N_1}{N_1-1}\cdot\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)} = 0.00000$
$R_7 - \frac{N_1}{N_1-1}\cdot\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^{2} = 0.00000$
$R_8 - \frac{N_1}{N_1-1}\cdot\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^{3} = 0.00000$

090912-6

$N_1 = 1.21811$
$R_1 = 1.05056$
$R_2 = 1.10368$
$R_3 = 1.48380$
$R_4 = 2.20166$
$R_5 = 4.84731$



$R_1 - N_1^{\frac{1}{4}} = 0.00000$ $R_3 - N_1^2 = 0.00000$

$R_2 - N_1^{\frac{1}{2}} = 0.00000$ $R_4 - N_1^4 = 0.00000$

$R_5 - N_1^8 = 0.00000$

One of the original methods I learned of doing exponential progression was by using what I call the unit circle. In this plate, I simply add the two figures together. I will do the exponential divisions in the unit circle.

One might consider, how the figures add together effortlessly when they are conceived of correctly. The unit circle, and the unit square, and the unit line, all work together using the same language, each depend simply upon the recursion of the unit, as does all of the language.

$$AB := 1$$

$$N_1 := 1.21811$$

$$BN_1 := \sqrt{AB^2 + N_1^2} \qquad BG := \frac{N_1}{BN_1} \qquad BP := N_1 \cdot \frac{BG}{BN_1} \qquad OX := \frac{AB}{2}$$

$$MP := BP - OX \qquad OP := \sqrt{OX^2 + MP^2} \qquad OH := \frac{OX \cdot AB}{OP} \qquad PH := OH - OP$$

$$PQ := \frac{MP \cdot PH}{OP} \qquad BQ := OX + MP + PQ \qquad HQ := \sqrt{BQ \cdot (AB - BQ)}$$

$$R_3 := \frac{BQ}{HQ} \qquad R_3 = 1.483792$$

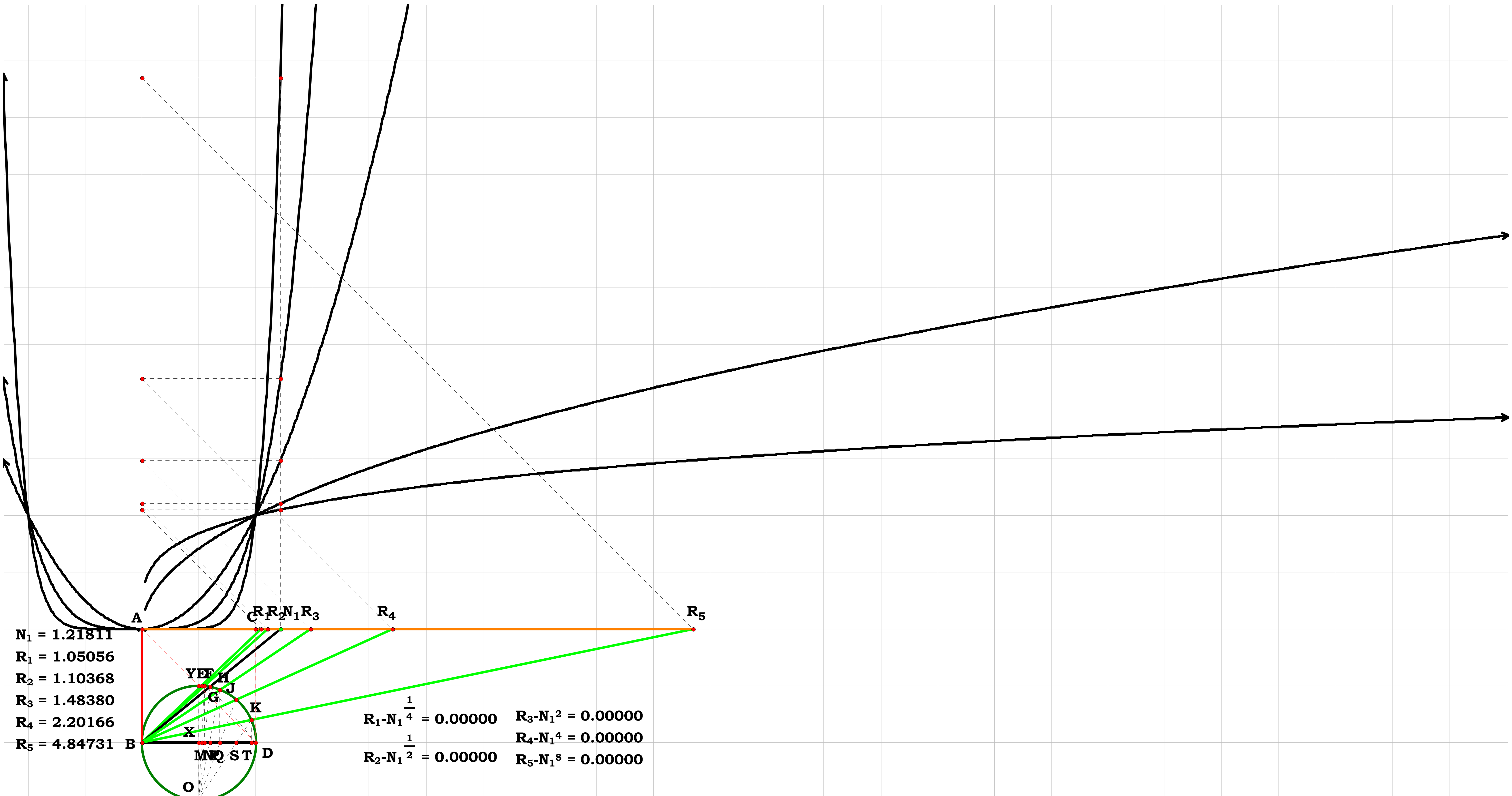
Now, Mathcad will come up with the following and simply refuse to reduce it.

$$R_3 - \frac{N_1^4}{\sqrt{\frac{N_1^4}{\left(N_1^4 + 1\right)^2} \cdot \left(N_1^4 + 1\right)}} = 0$$

Being a dumb program, only doing what it is told, we do not have to worry about hurting its feelings by finishing the job. One might find that in many math programs, one still has to give them a helping hand.

Simply repeat the process for every value one wishes to find, or until one can take a hint.

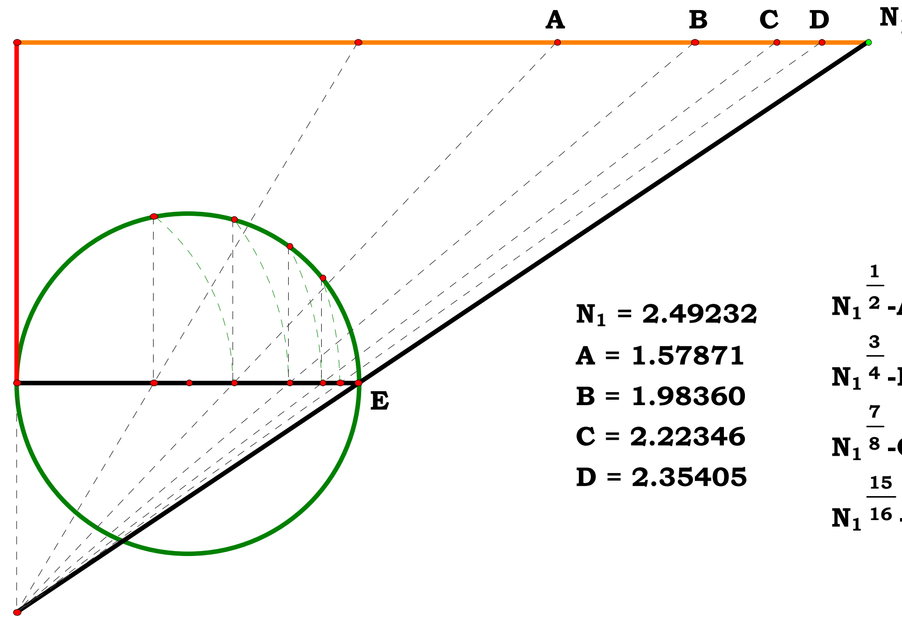
$$R_3 - N_1^2 = 0$$



A
C
R_1
R_2
N_1
R_3
R_4
R_5
$N_1 = 1.21811$
$R_1 = 1.05056$
$R_2 = 1.10368$
$R_3 = 1.48380$
$R_4 = 2.20166$
$R_5 = 4.84731$
Y E F
H
G
J
K
X
B
M N P Q
S
T
D
O
$R_1\text{-}N_1^{\frac{1}{4}} = 0.00000$
$R_2\text{-}N_1^{\frac{1}{2}} = 0.00000$
$R_3\text{-}N_1^2 = 0.00000$
$R_4\text{-}N_1^4 = 0.00000$
$R_5\text{-}N_1^8 = 0.00000$

090912-9

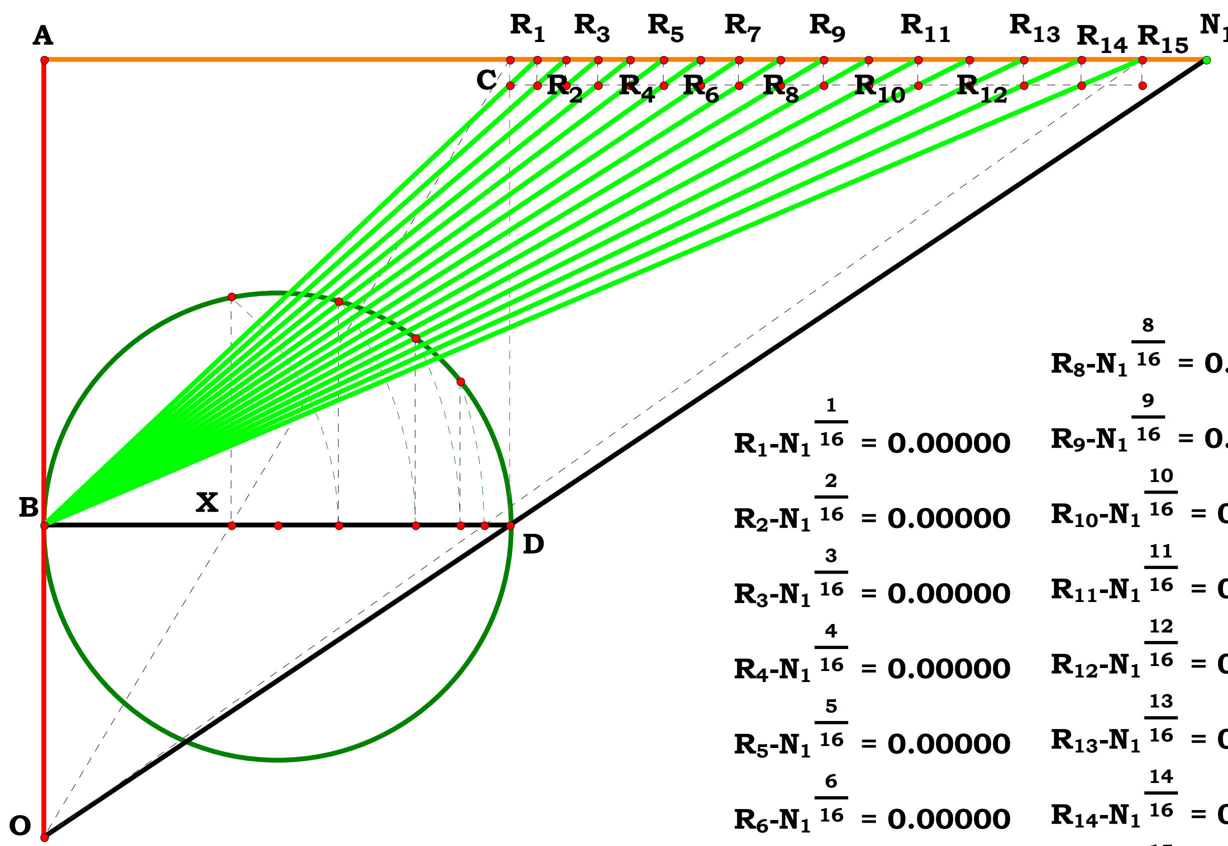
One might add this method for finding exponential series to their bag of tricks. I am not going to demonstrate the mathematics. One might refer to The Delian Quest.



$N_1 = 2.49232$
$A = 1.57871$
$B = 1.98360$
$C = 2.22346$
$D = 2.35405$

$N_1^{\frac{1}{2}} - A = 0.00000$
$N_1^{\frac{3}{4}} - B = 0.00000$
$N_1^{\frac{7}{8}} - C = 0.00000$
$N_1^{\frac{15}{16}} - D = 0.00000$

$N_1 = 2.49232$
$R_1 = 1.05874$
$R_2 = 1.12092$
$R_3 = 1.18676$
$R_4 = 1.25647$
$R_5 = 1.33027$
$R_6 = 1.40840$
$R_7 = 1.49113$
$R_8 = 1.57871$
$R_9 = 1.67144$
$R_{10} = 1.76961$
$R_{11} = 1.87355$
$R_{12} = 1.98360$
$R_{13} = 2.10010$
$R_{14} = 2.22346$
$R_{15} = 2.35405$

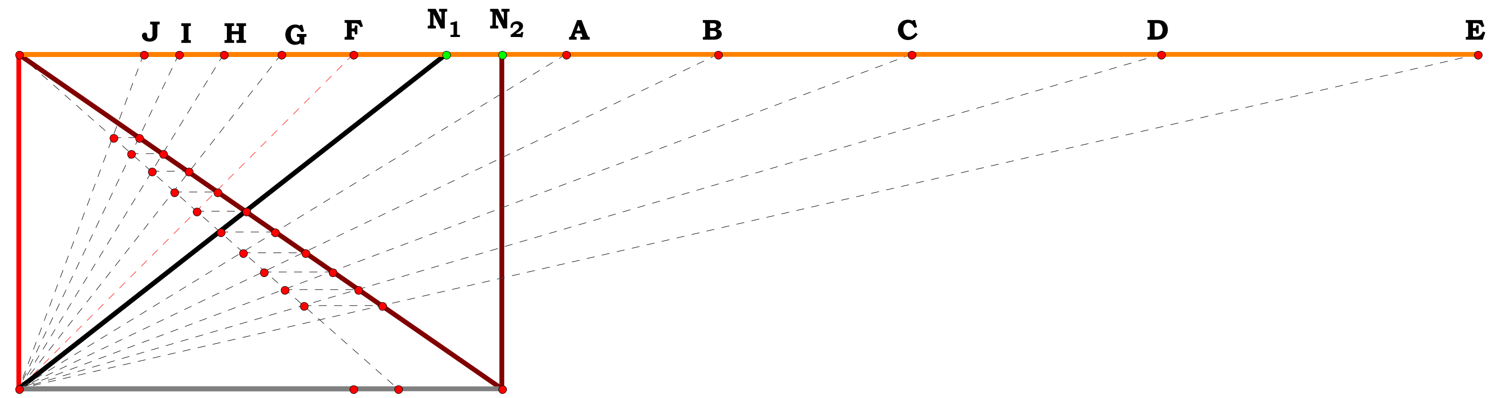


$R_1 - N_1^{\frac{1}{16}} = 0.00000$
$R_2 - N_1^{\frac{2}{16}} = 0.00000$
$R_3 - N_1^{\frac{3}{16}} = 0.00000$
$R_4 - N_1^{\frac{4}{16}} = 0.00000$
$R_5 - N_1^{\frac{5}{16}} = 0.00000$
$R_6 - N_1^{\frac{6}{16}} = 0.00000$
$R_7 - N_1^{\frac{7}{16}} = 0.00000$
$R_8 - N_1^{\frac{8}{16}} = 0.00000$
$R_9 - N_1^{\frac{9}{16}} = 0.00000$
$R_{10} - N_1^{\frac{10}{16}} = 0.00000$
$R_{11} - N_1^{\frac{11}{16}} = 0.00000$
$R_{12} - N_1^{\frac{12}{16}} = 0.00000$
$R_{13} - N_1^{\frac{13}{16}} = 0.00000$
$R_{14} - N_1^{\frac{14}{16}} = 0.00000$
$R_{15} - N_1^{\frac{15}{16}} = 0.00000$

091712

About the only thing interesting about this plate is that the second variable will not be found in the equation. No matter how large or how small one makes it, it will remain invisible to the logic except for one point, it has to be there. In short, its value is of no concern, its form, however, is required. Therefore, there are equations, which, a value is not seen, nor does one find its name, however, without being able to conceptually abstract it, one cannot solve for what they do have. The figure gives one something to think about in regard to conceptual ability. To solve a problem when one is dealing with a form of behavior one has to infer. I exampled a figure with this fact in the Delian Quest. The structure had to be there, but it neither added to, nor subtracted from the equation, they are binary operations.

Or, one can say, that in doing the math, the unit, or one always has to be kept in mind.



	A = 1.63353	F = 1.00000	N_1^2-A = 0.00000	N_1^0-F = 0.00000
N_1 = 1.27809	B = 2.08780	G = 0.78241	N_1^3-B = 0.00000	N_1^{-1}-G = 0.00000
N_2 = 1.44523	C = 2.66841	H = 0.61217	N_1^4-C = 0.00000	N_1^{-2}-H = 0.00000
	D = 3.41048	I = 0.47897	N_1^5-D = 0.00000	N_1^{-3}-I = 0.00000
	E = 4.35891	J = 0.37476	N_1^6-E = 0.00000	N_1^{-4}-J = 0.00000

930725

$AB := 1$

$N_1 := 4.05604$

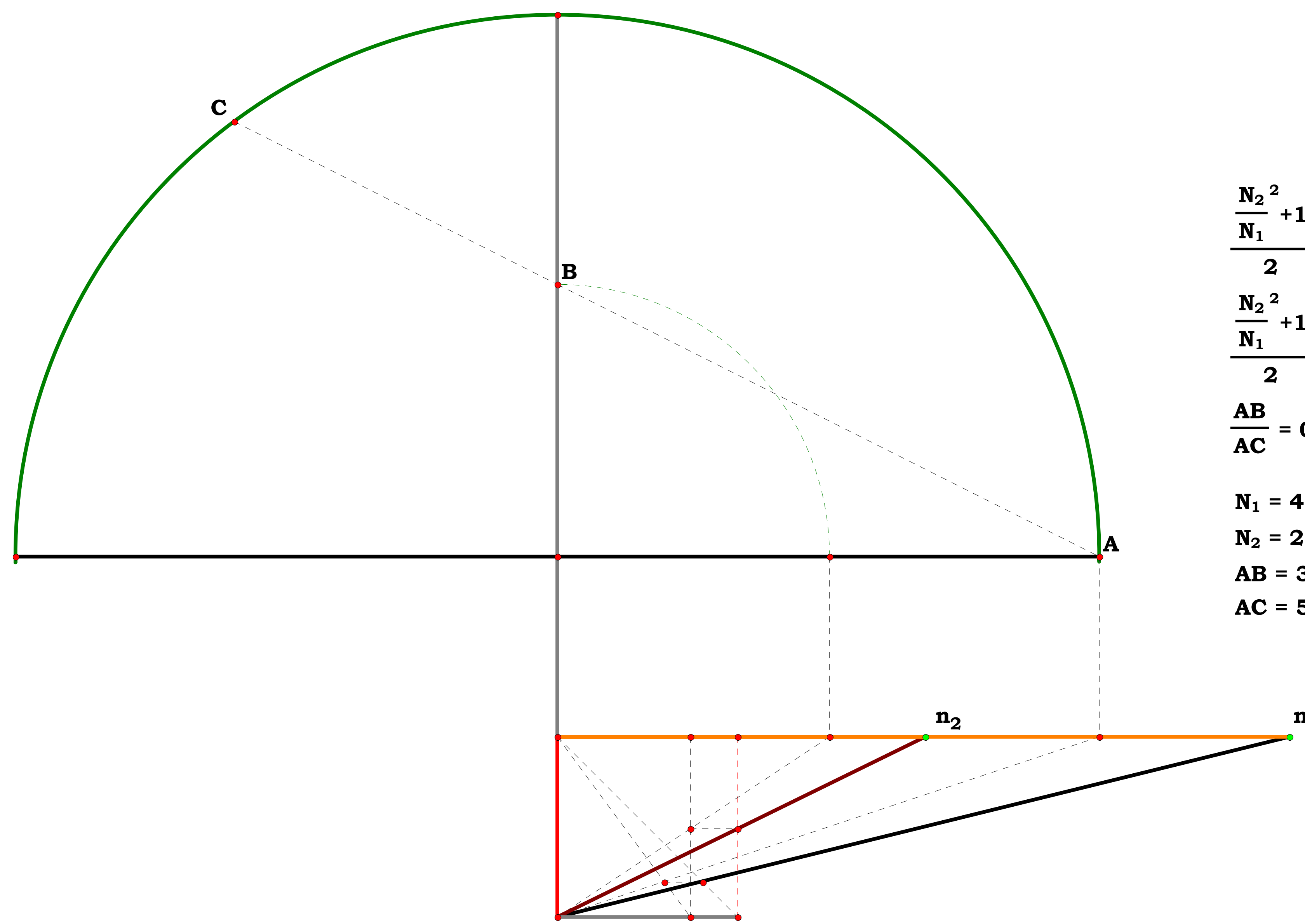
$N_2 := 2.03783$

$$\frac{\left(\frac{N_2}{N_1}\right)^2 + 1}{2} = 0.626212$$

$$\frac{N_1{}^2 + N_2{}^2}{2 \cdot N_1{}^2} = 0.626212$$

$$\frac{N_2{}^2}{2 \cdot N_1{}^2} + \frac{1}{2} = 0.626212$$

$$\frac{1}{2} \cdot \left(\frac{N_2}{N_1}\right)^2 + \frac{1}{2} = 0.626212$$



$$\frac{\frac{N_2{}^2}{N_1} + 1}{2} - \frac{AB}{AC} = 0.00000$$

$$\frac{\frac{N_2{}^2}{N_1} + 1}{2} = 0.62621$$

$$\frac{AB}{AC} = 0.62621$$

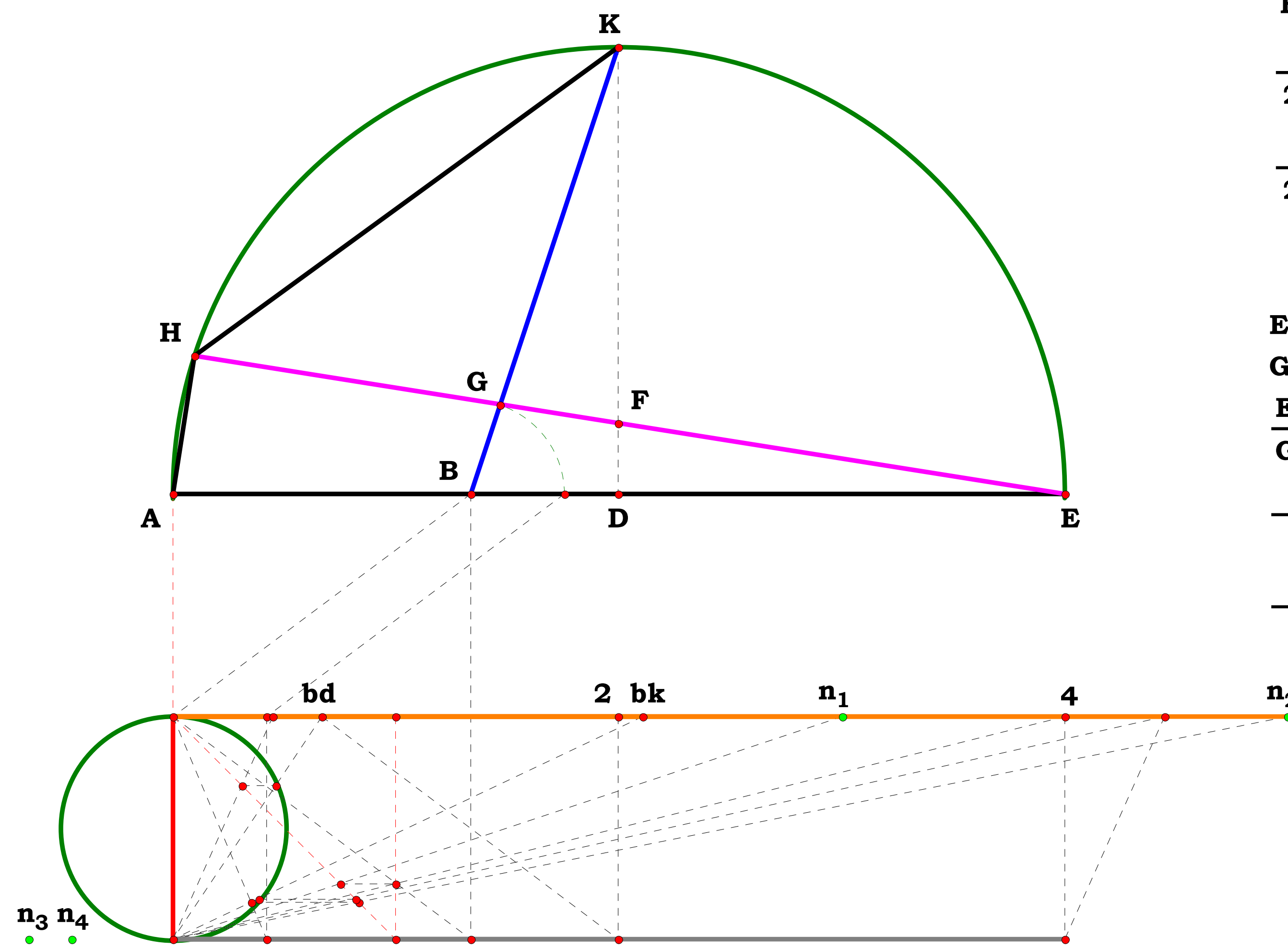
$N_1 = 4.05604$

$N_2 = 2.03783$

$AB = 3.35735$

$AC = 5.36137$

931124



$HK = 2.35269$

$$\frac{AH}{HK} = 0.26517$$

$$\frac{\sqrt{2}\cdot N_1}{2\cdot(N_1-1)\cdot(N_2-1)} = 0.26517$$

$$\frac{\sqrt{2}\cdot N_1}{2\cdot(N_1-1)\cdot(N_2-1)} - \frac{AH}{HK} = 0.00000$$

$EH = 3.95105$

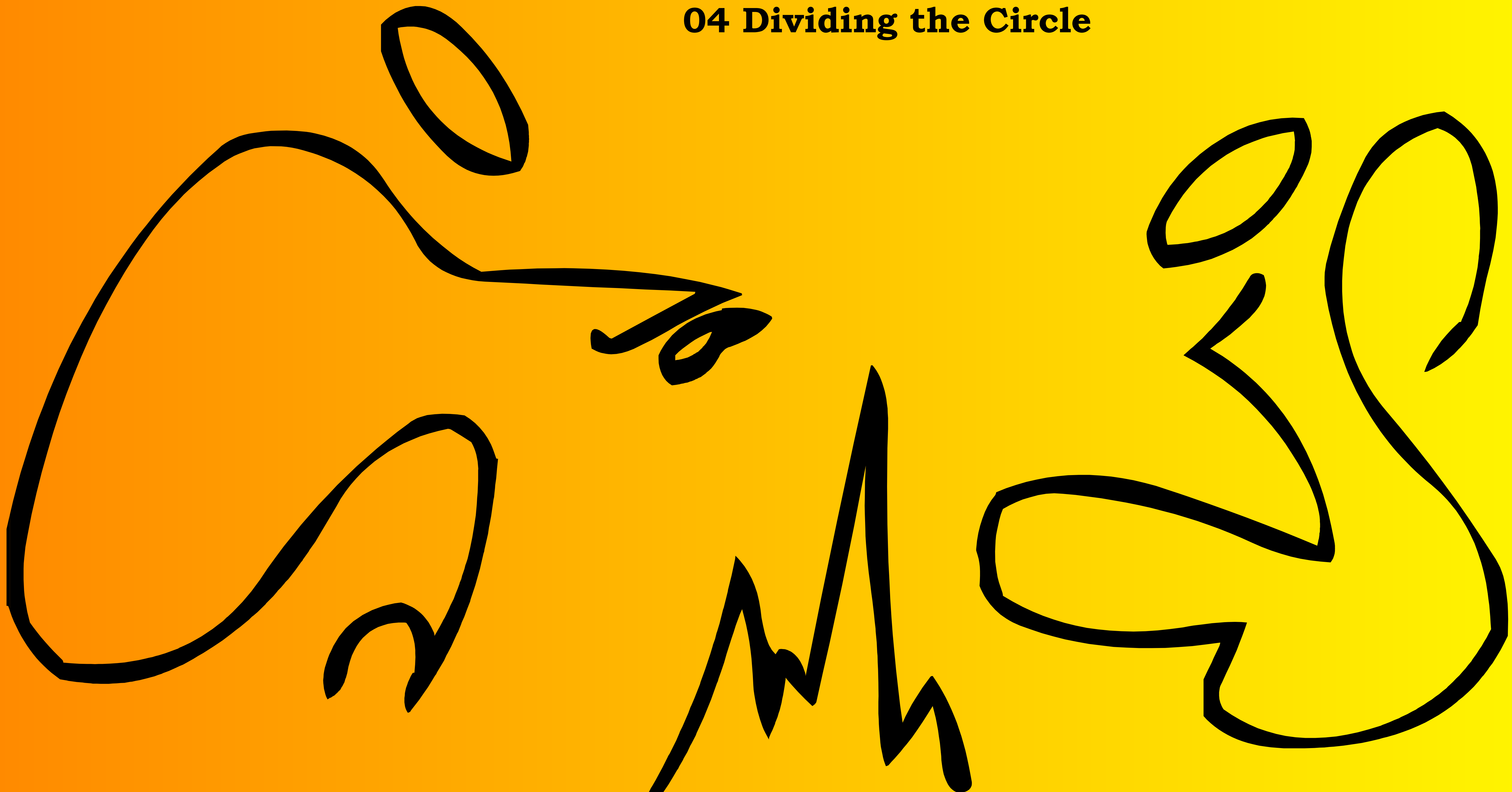
$GH = 1.38633$

$$\frac{EH}{GH} = 2.85000$$

$$\frac{N_1\cdot N_2\cdot((2\cdot N_1\cdot N_2-2\cdot N_2-N_1)+2)}{(N_2-1)\cdot((((2\cdot N_1\cdot N_2-2\cdot N_2)+N_1^2)-2\cdot N_1)+2)} = 2.85000$$

$$\frac{N_1\cdot N_2\cdot((2\cdot N_1\cdot N_2-2\cdot N_2-N_1)+2)}{(N_2-1)\cdot((((2\cdot N_1\cdot N_2-2\cdot N_2)+N_1^2)-2\cdot N_1)+2)} - \frac{EH}{GH} = 0.00000$$

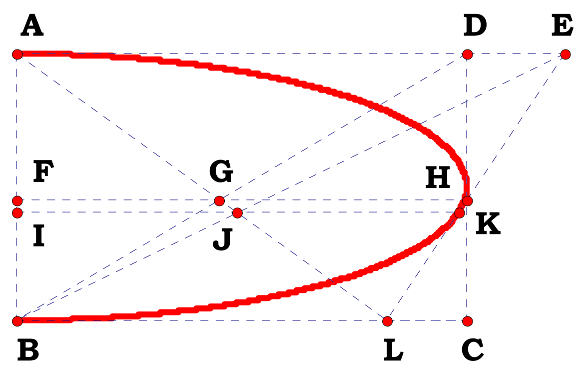
04 Dividing the Circle



John 312

Curve of the Equation.

$$\frac{2 \cdot N_3 \cdot N_2 - 2 \cdot N_2}{N_3^{\,2} - 2 \cdot N_3 + 2} = 4.2$$



$N_1 \equiv 9999999999$

$N_2 \equiv 7$

$N_3 \equiv 4$

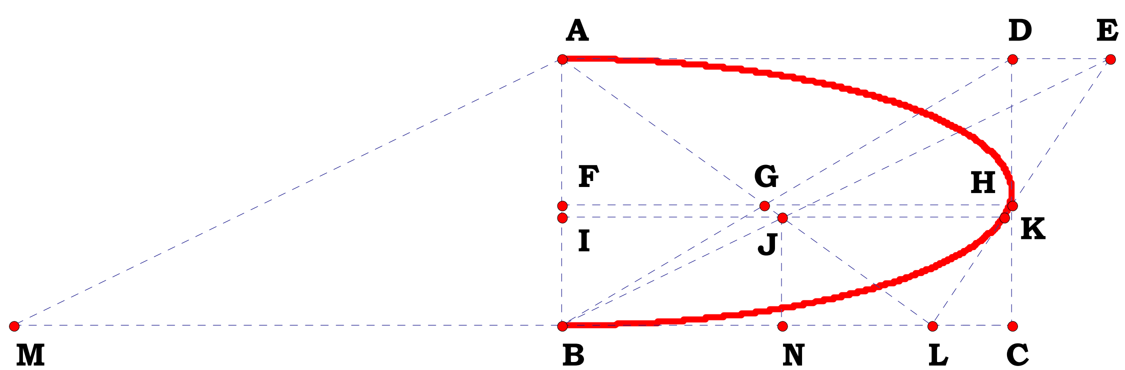
$AB := N_1$

$AD := N_2 \quad BC := AD$

$$AF := \frac{AB}{N_3}$$

$$BF := AB - AF \quad FG := \frac{BC \cdot BF}{AB} \quad BL := \frac{FG \cdot AB}{AF} \quad CL := BC - BL$$

$$DE := \frac{CL \cdot AF}{BF} \quad AE := AD + DE \quad \sqrt{BL \cdot AE} - AD = 0 \quad JN := \frac{AB \cdot BL}{AE + BL}$$



$$BN := \frac{AE \cdot JN}{AB} \quad IK := 2 \cdot BN \quad IK - \frac{2 \cdot N_3 \cdot N_2 - 2 \cdot N_2}{N_3^{\,2} - 2 \cdot N_3 + 2} = 0 \quad IK = 4.2$$

$00 = 2.34950$ cm

$N_00 = 10.11767$ cm

$N_10 = 7.59534$ cm

$N_20 = 13.47764$ cm

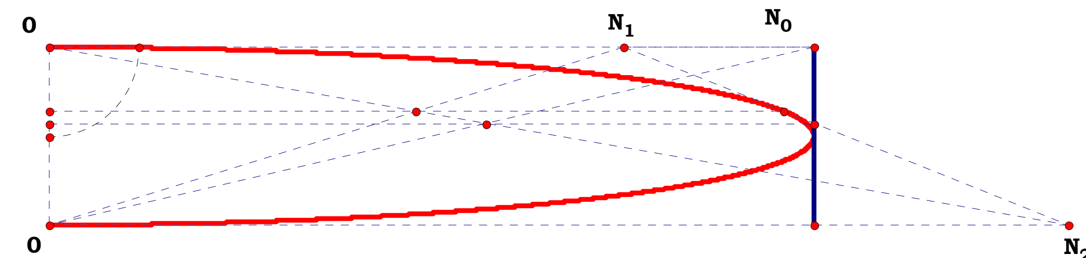
$N_10 \cdot N_20 - N_00^2 = 0.00000$ cm^2

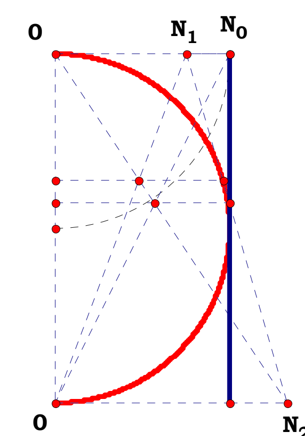
$N_0 = 4.30631$

$N_1 = 3.23275$

$N_2 = 5.73638$

$N_1 \cdot N_2 - N_0^2 = 0.00000$





$00 = 4.61433$ cm

$N_00 = 2.30717$ cm

$N_10 = 1.73199$ cm

$N_20 = 3.07335$ cm

$N_10 \cdot N_20 - N_00^2 = 0.00000$ cm^2

$N_0 = 0.50000$

$N_1 = 0.37535$

$N_2 = 0.66604$

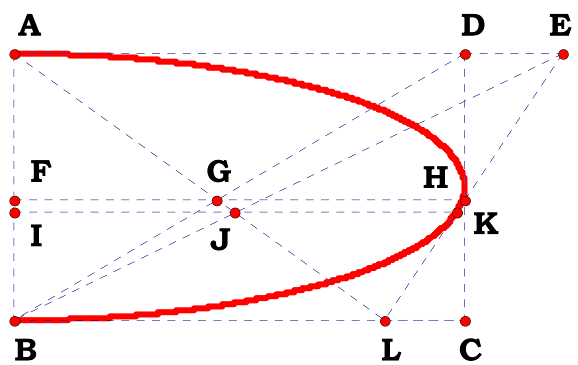
$N_1 \cdot N_2 - N_0^2 = 0.00000$

After one acquires the equation, even if one put 0 in for the unit of the geometry, the equation remains the same for a circle and ellipse. This means, that no matter how one envision the circle, larger than largest or not at all its definition remains the same.

Curve of the Equation.

Proportion is independent of the naming convention.

$$\frac{2 \cdot N_3 \cdot N_2 - 2 \cdot N_2}{N_3^{\,2} - 2 \cdot N_3 + 2} = 4.2$$



$N_1 \equiv 0$

$N_2 \equiv 7$

$N_3 \equiv 4$

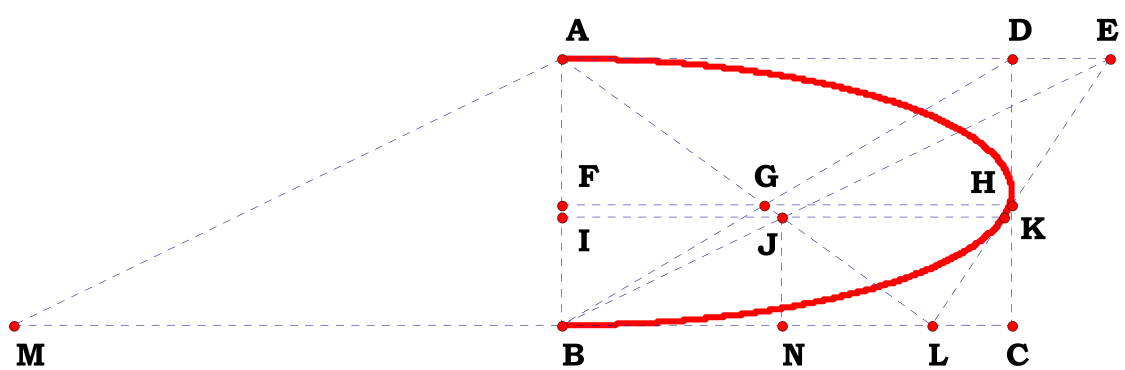
$AB := N_1$

$AD := N_2 \quad BC := AD$

$AF := \frac{AB}{N_3}$

$BF := AB - AF \quad FG := \frac{BC \cdot BF}{AB} \quad BL := \frac{FG \cdot AB}{AF} \quad CL := BC - BL$

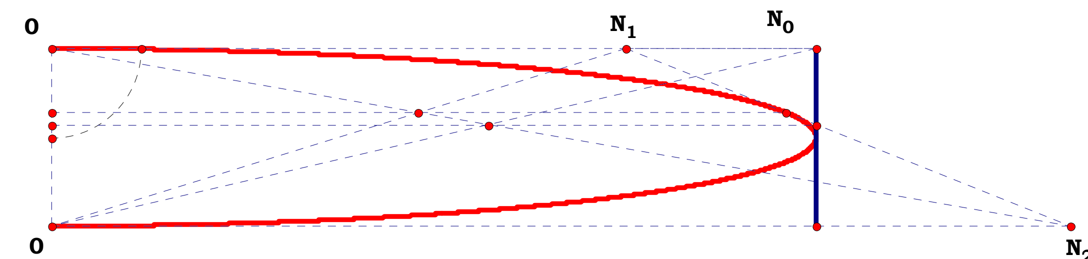
$DE := \frac{CL \cdot AF}{BF} \quad AE := AD + DE \quad \sqrt{BL \cdot AE} - AD = ▪ \quad JN := \frac{AB \cdot BL}{AE + BL}$

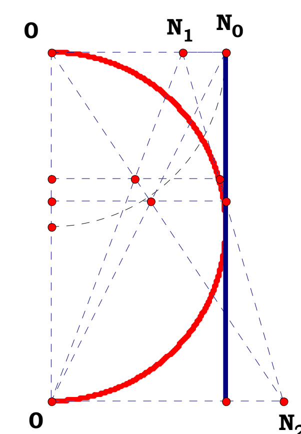


$BN := \frac{AE \cdot JN}{AB} \quad IK := 2 \cdot BN \quad IK - \frac{2 \cdot N_3 \cdot N_2 - 2 \cdot N_2}{N_3^{\,2} - 2 \cdot N_3 + 2} = ▪ \quad IK = ▪$

00 = 2.34950 cm
$N_0$0 = 10.11767 cm
$N_1$0 = 7.59534 cm
$N_2$0 = 13.47764 cm
$N_1$0·$N_2$0-$N_0$0^2 = 0.00000 cm^2

N_0 = 4.30631
N_1 = 3.23275
N_2 = 5.73638
$N_1 \cdot N_2 - N_0^2$ = 0.00000

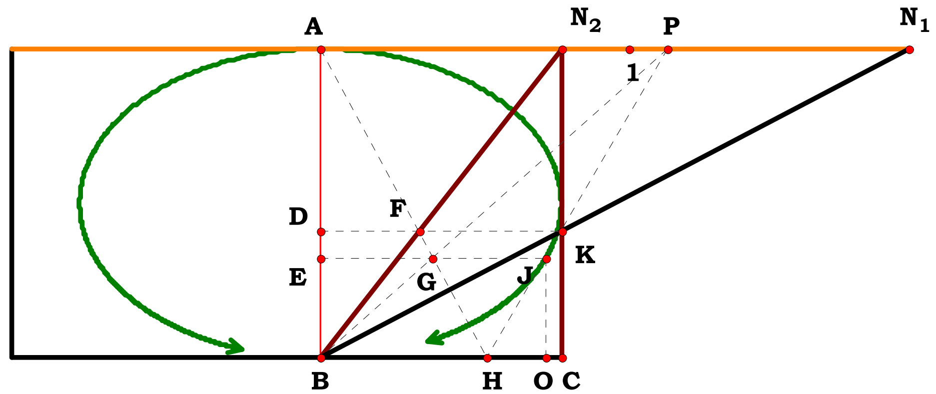




00 = 4.61433 cm
$N_0$0 = 2.30717 cm
$N_1$0 = 1.73199 cm
$N_2$0 = 3.07335 cm
$N_1$0·$N_2$0-$N_0$0^2 = 0.00000 cm^2

N_0 = 0.50000
N_1 = 0.37535
N_2 = 0.66604
$N_1 \cdot N_2 - N_0^2$ = 0.00000

After one acquires the equation, even if one put 0 in for the unit of the geometry, the equation remains the same for a circle and ellipse. This means, that no matter how one envision the circle, larger than largest or not at all its definition remains the same.



$AB := 1$

Given:

$N_1 := 2.75805$

$N_2 := .79464$

Find EJ.

The Curve of the Equation:

Expressing a circle as a linear function.

Descriptions:

$AD := AB - \frac{N_2}{N_1}$ $\quad DF := N_2 \cdot (AB - AD)$ $\quad BH := \frac{DF}{AD}$ $\quad CH := N_2 - BH$

$CK := AB - AD$ $\quad PN_2 := \frac{CH \cdot AD}{CK}$ $\quad AP := N_2 + PN_2$

$AE := \frac{AB \cdot AP}{AP + BH}$ $\quad BE := AB - AE$ $\quad HO := \frac{CH \cdot BE}{CK}$ $\quad EJ := BH + HO$

Definitions:

$$EJ - \frac{2 \cdot N_2^{\,2} \cdot (N_1 - N_2)}{N_1^{\,2} - 2 \cdot N_1 \cdot N_2 + 2 \cdot N_2^{\,2}} = 0$$

$$\sqrt{AP \cdot BH} - N_2 = 0 \qquad AP - (N_1 - N_2) = 0 \qquad BH - \frac{N_2^{\,2}}{N_1 - N_2} = 0$$

$$\frac{N_2 \cdot \left[EJ + N_2 + \frac{N_1 - 1}{\sqrt{(N_1 - 1)^2}} \cdot \sqrt{N_2^{\,2} - EJ^2} \right]}{EJ} - N_1 = 0$$

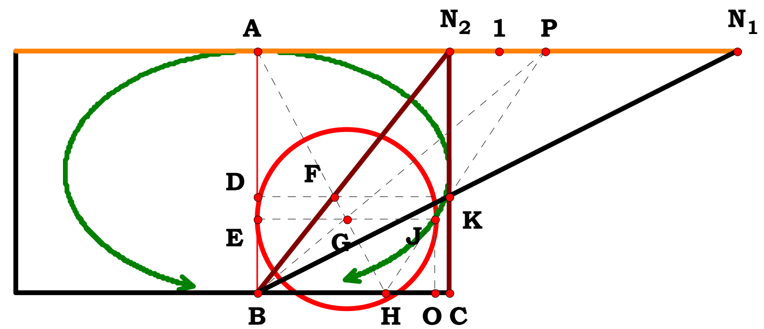
Notice that EJ is not expressed as a root function.

Given:

$EJ = 0.552689$

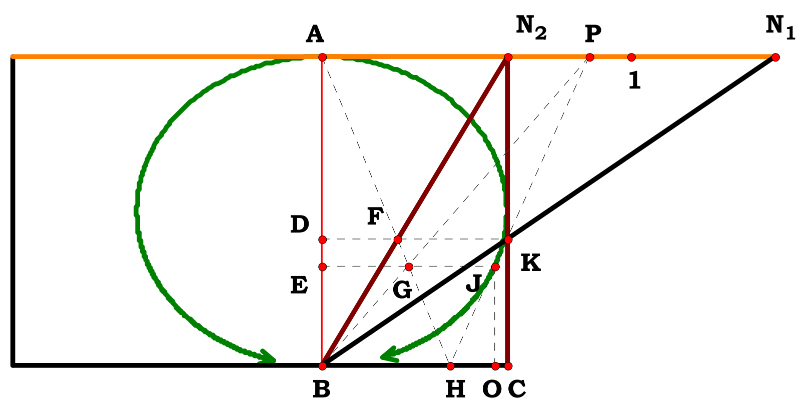
$AE = 0.859253$

Find N_1 an N_2:



$$BH - \frac{EJ}{2 \cdot AE} = 0 \qquad BE - (AB - AE) = 0 \qquad AP - \left(BH + \frac{EJ - BH}{BE}\right) = 0$$

$$N_2 - \sqrt{BH \cdot AP} = 0 \qquad CK - BE \cdot \frac{N_2 - BH}{EJ - BH} = 0 \qquad N_1 - \frac{N_2}{CK} = 0 \qquad CK - \frac{N_2}{N_1} = 0$$



Given N_1 an N_2: find EJ.

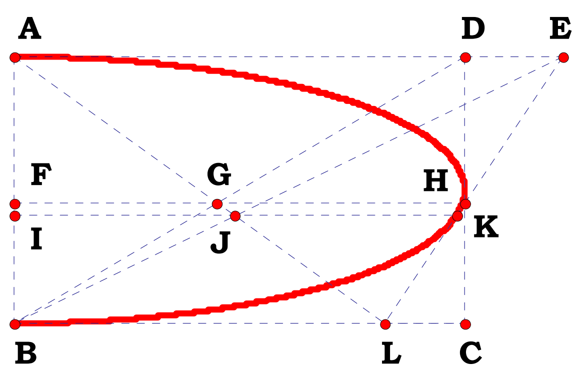
Descriptions:

$$AP - (N_1 - N_2) = 0 \qquad CK - \frac{N_2}{N_1} = 0 \qquad CH - \left(\frac{AP - N_2}{AB - CK}\right) \cdot CK = 0 \qquad BH - (N_2 - CH) = 0$$

$$EJ - 2\frac{AP \cdot BH}{AP + BH} = 0 \qquad EJ - 2\frac{(N_1 - N_2) \cdot \frac{N_2^{\,2}}{N_1 - N_2}}{N_1 - N_2 + \frac{N_2^{\,2}}{N_1 - N_2}} = 0 \qquad EJ - \frac{2 \cdot N_2^{\,2} \cdot (N_1 - N_2)}{N_1^{\,2} - 2 \cdot N_1 \cdot N_2 + 2 \cdot N_2^{\,2}} = 0$$

Notice that IK is not expressed as a root function.

$$\frac{N_2 \cdot \left(2 \cdot N_3 - 2 \cdot N_3^{\,2}\right)}{2 \cdot N_3^{\,2} - 2 \cdot N_3 + 1} = 0.779338$$



$N_1 \equiv 3.51896$

$N_2 \equiv 5.95313$

$N_3 \equiv .54930$

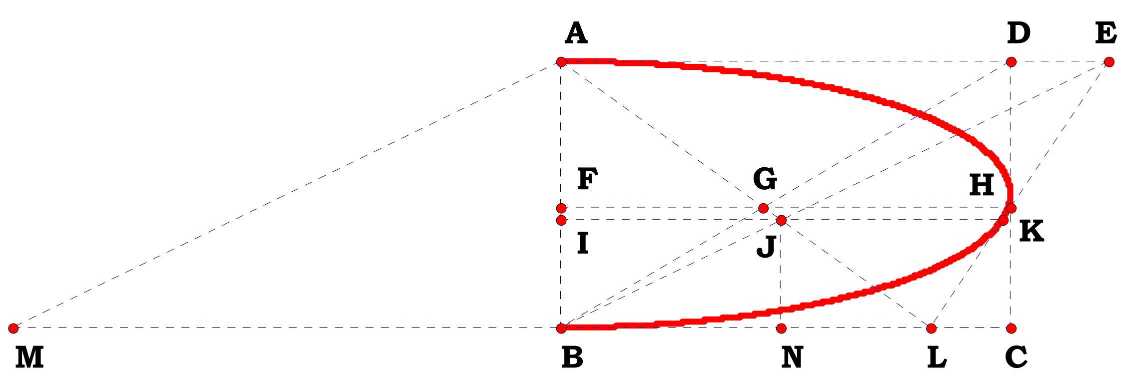
$AB := N_1$

$AD := N_2 \quad BC := AD$

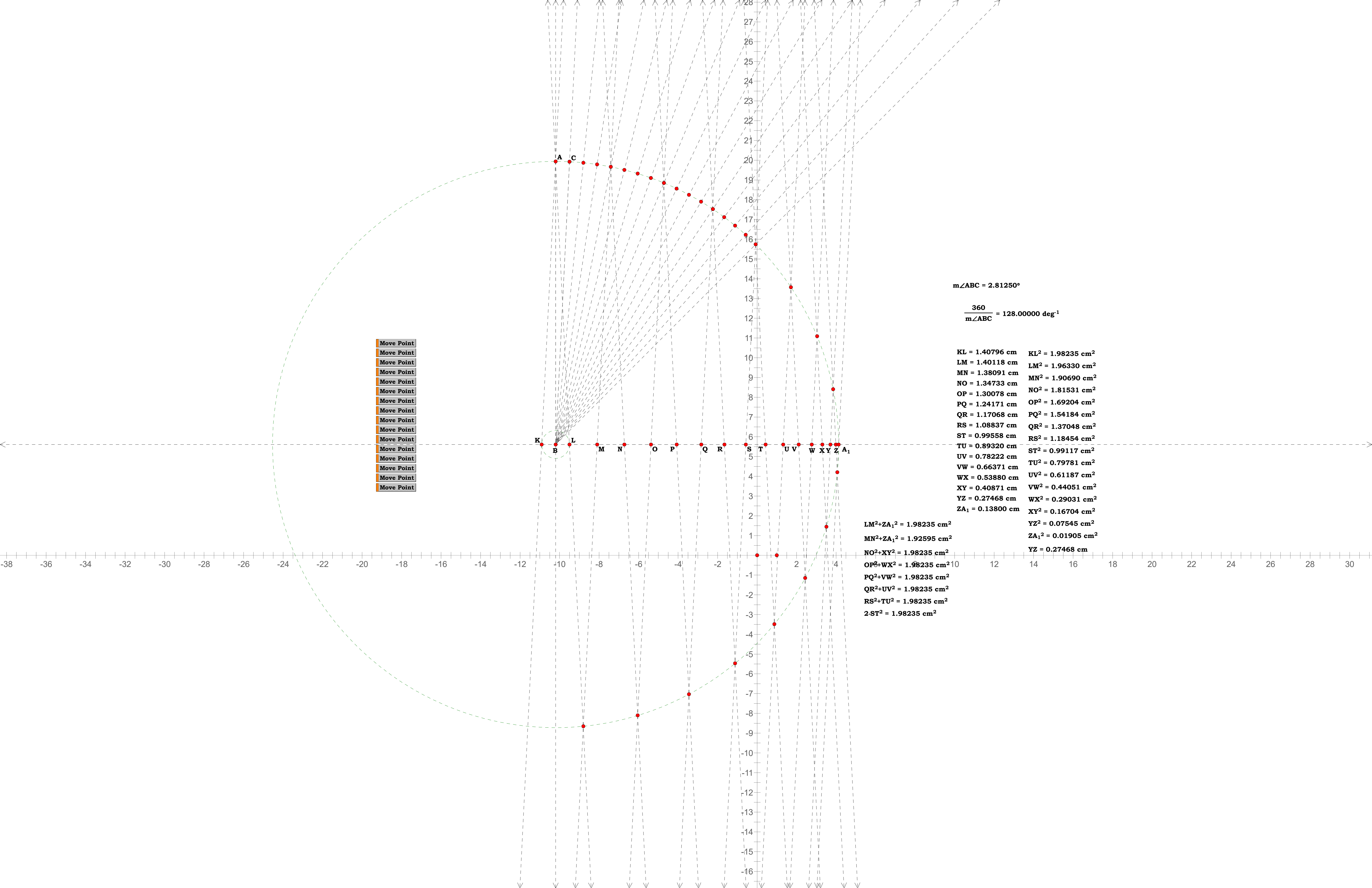
$AF := N_3 \cdot AB$

$BF := AB - AF \quad FG := \dfrac{BC \cdot BF}{AB} \quad BL := \dfrac{FG \cdot AB}{AF} \quad CL := BC - BL$

$DE := \dfrac{CL \cdot AF}{BF} \quad AE := AD + DE \quad \sqrt{BL \cdot AE} - AD = 0 \quad JN := \dfrac{AB \cdot BL}{(AE + BL)}$



$BN := \dfrac{AE \cdot JN}{AB} \quad IK := 2 \cdot BN \quad IK - \dfrac{N_2 \cdot \left(2 \cdot N_3 - 2 \cdot N_3^{\,2}\right)}{2 \cdot N_3^{\,2} - 2 \cdot N_3 + 1} = 0$



Move Point
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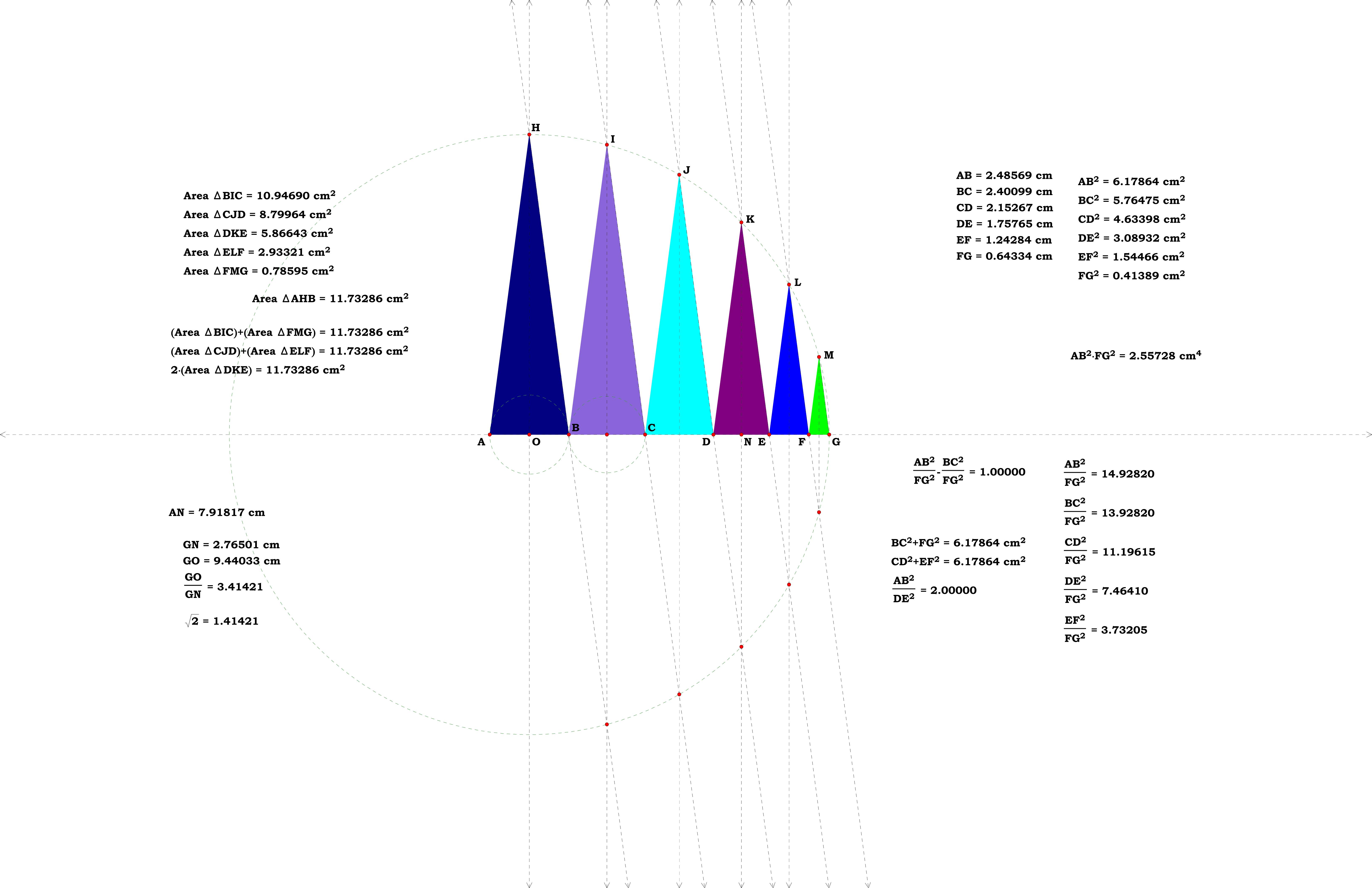
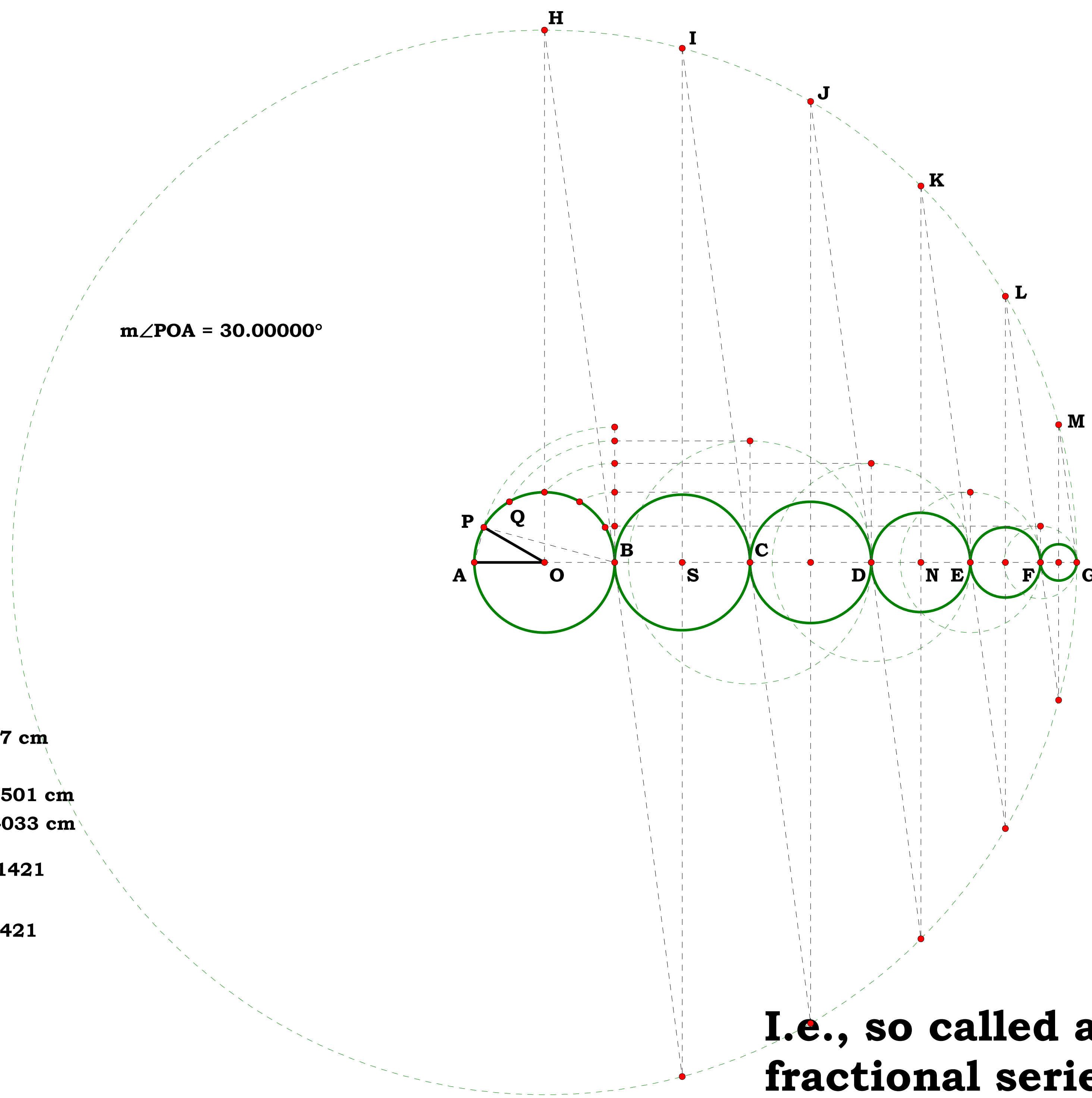
Move Point
m∠ABC = 2.81250°
$\frac{360}{m\angle ABC}$ = 128.00000 deg^{-1}
KL = 1.40796 cm
LM = 1.40118 cm
MN = 1.38091 cm
NO = 1.34733 cm
OP = 1.30078 cm
PQ = 1.24171 cm
QR = 1.17068 cm
RS = 1.08837 cm
ST = 0.99558 cm
TU = 0.89320 cm
UV = 0.78222 cm
VW = 0.66371 cm
WX = 0.53880 cm
XY = 0.40871 cm
YZ = 0.27468 cm
ZA_1 = 0.13800 cm
KL^2 = 1.98235 cm^2
LM^2 = 1.96330 cm^2
MN^2 = 1.90690 cm^2
NO^2 = 1.81531 cm^2
OP^2 = 1.69204 cm^2
PQ^2 = 1.54184 cm^2
QR^2 = 1.37048 cm^2
RS^2 = 1.18454 cm^2
ST^2 = 0.99117 cm^2
TU^2 = 0.79781 cm^2
UV^2 = 0.61187 cm^2
VW^2 = 0.44051 cm^2
WX^2 = 0.29031 cm^2
XY^2 = 0.16704 cm^2
YZ^2 = 0.07545 cm^2
ZA_1^2 = 0.01905 cm^2
YZ = 0.27468 cm
$LM^2+ZA_1^2$ = 1.98235 cm^2
$MN^2+ZA_1^2$ = 1.92595 cm^2
NO^2+XY^2 = 1.98235 cm^2
OP^2+WX^2 = 1.98235 cm^2
PQ^2+VW^2 = 1.98235 cm^2
QR^2+UV^2 = 1.98235 cm^2
RS^2+TU^2 = 1.98235 cm^2
$2\cdot ST^2$ = 1.98235 cm^2


H
I
J
K
L
M
A
O
B
C
D
N
E
F
G
Area △BIC = 10.94690 cm^2
Area △CJD = 8.79964 cm^2
Area △DKE = 5.86643 cm^2
Area △ELF = 2.93321 cm^2
Area △FMG = 0.78595 cm^2
Area △AHB = 11.73286 cm^2
(Area △BIC)+(Area △FMG) = 11.73286 cm^2
(Area △CJD)+(Area △ELF) = 11.73286 cm^2
2·(Area △DKE) = 11.73286 cm^2
AB = 2.48569 cm
BC = 2.40099 cm
CD = 2.15267 cm
DE = 1.75765 cm
EF = 1.24284 cm
FG = 0.64334 cm
$AB^2 = 6.17864\ cm^2$
$BC^2 = 5.76475\ cm^2$
$CD^2 = 4.63398\ cm^2$
$DE^2 = 3.08932\ cm^2$
$EF^2 = 1.54466\ cm^2$
$FG^2 = 0.41389\ cm^2$
$AB^2 \cdot FG^2 = 2.55728\ cm^4$
$\frac{AB^2}{FG^2} - \frac{BC^2}{FG^2} = 1.00000$
$\frac{AB^2}{FG^2} = 14.92820$
$\frac{BC^2}{FG^2} = 13.92820$
$\frac{CD^2}{FG^2} = 11.19615$
$\frac{DE^2}{FG^2} = 7.46410$
$\frac{EF^2}{FG^2} = 3.73205$
$BC^2+FG^2 = 6.17864\ cm^2$
$CD^2+EF^2 = 6.17864\ cm^2$
$\frac{AB^2}{DE^2} = 2.00000$
AN = 7.91817 cm
GN = 2.76501 cm
GO = 9.44033 cm
$\frac{GO}{GN} = 3.41421$
$\sqrt{2} = 1.41421$



m∠POA = 30.00000°

AB = 2.48569 cm
BC = 2.40099 cm
CD = 2.15267 cm
DE = 1.75765 cm

EF = 1.24284 cm
QA = 1.24284 cm
FG = 0.64334 cm
PA = 0.64334 cm

$AB^2 = 6.17864\ cm^2$
$BC^2 = 5.76475\ cm^2$
$CD^2 = 4.63398\ cm^2$
$DE^2 = 3.08932\ cm^2$
$EF^2 = 1.54466\ cm^2$
$FG^2 = 0.41389\ cm^2$

$AB^2 \cdot FG^2 = 2.55728\ cm^4$

AN = 7.91817 cm

GN = 2.76501 cm
GO = 9.44033 cm

$\frac{GO}{GN} = 3.41421$

$\sqrt{2} = 1.41421$

$\frac{AB^2}{FG^2} - \frac{BC^2}{FG^2} = 1.00000$

$BC^2+FG^2 = 6.17864\ cm^2$
$CD^2+EF^2 = 6.17864\ cm^2$

$\frac{AB^2}{DE^2} = 2.00000$

$\frac{AB^2}{FG^2} = 14.92820$

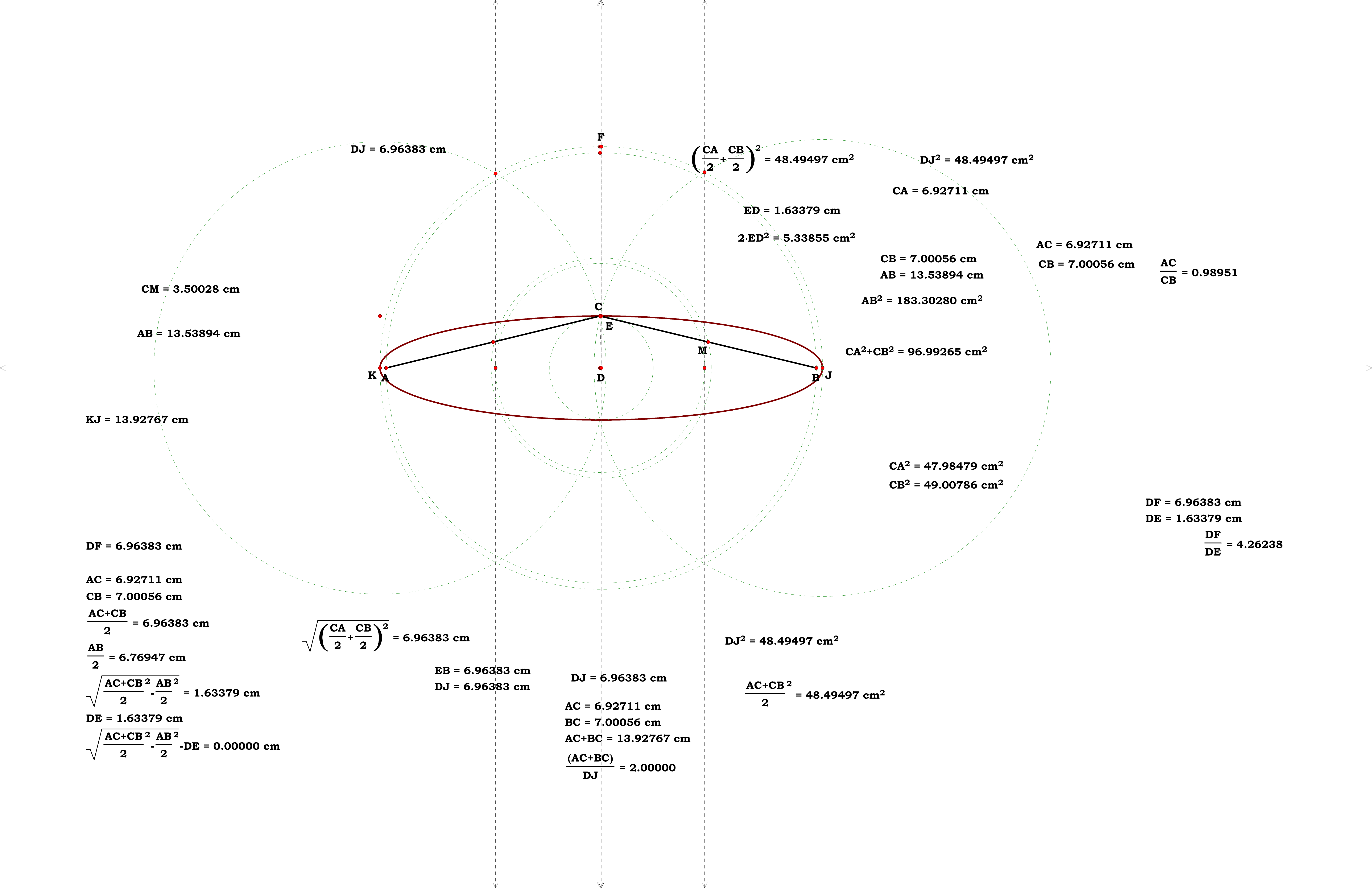
$\frac{BC^2}{FG^2} = 13.92820$

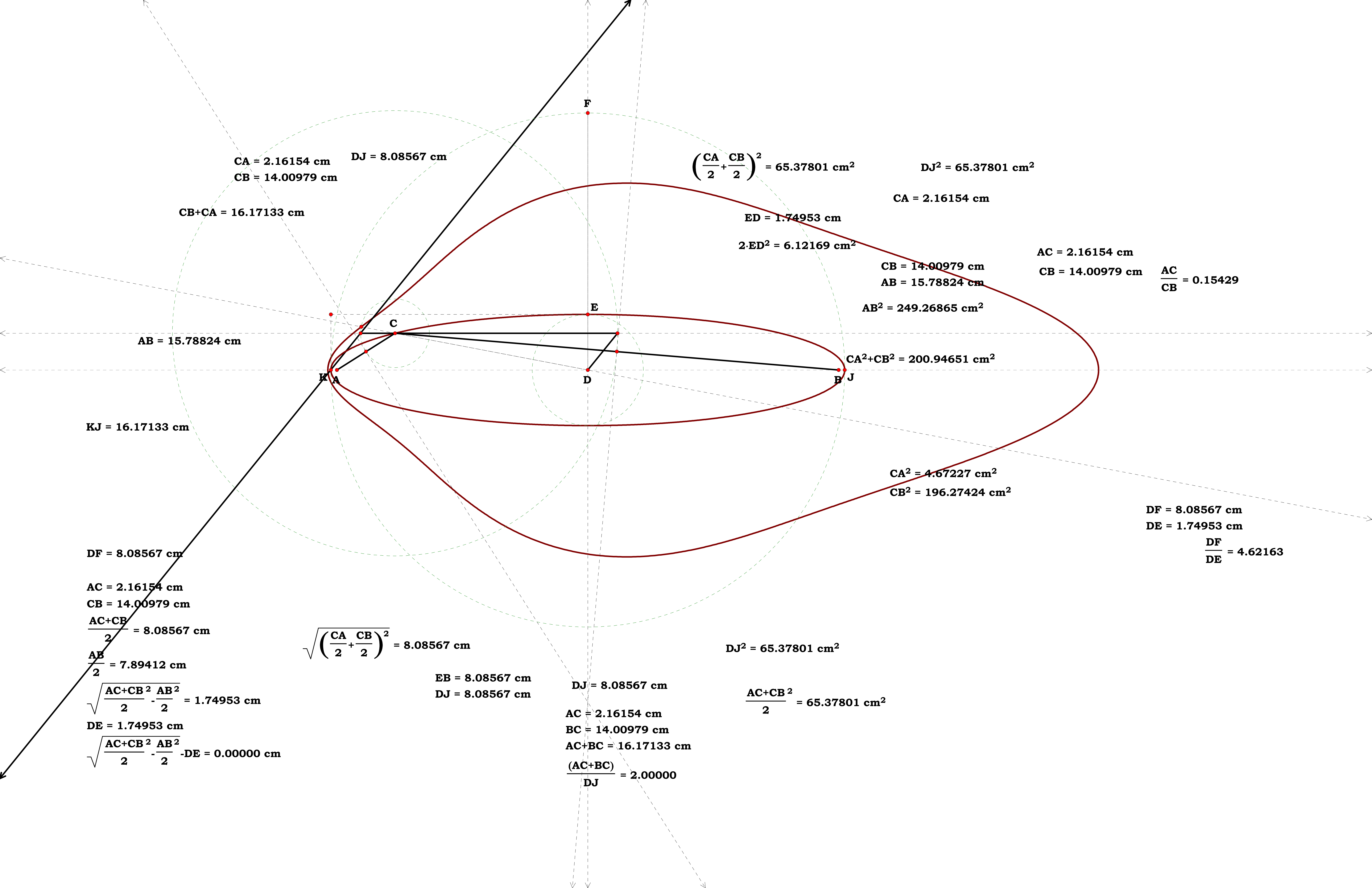
$\frac{CD^2}{FG^2} = 11.19615$

$\frac{DE^2}{FG^2} = 7.46410$

$\frac{EF^2}{FG^2} = 3.73205$

I.e., so called angular division is also a fractional series. One can call fractional series elliptical functions.


F
DJ = 6.96383 cm
$\left(\frac{CA}{2}+\frac{CB}{2}\right)^2$ = 48.49497 cm^2
DJ^2 = 48.49497 cm^2
CA = 6.92711 cm
ED = 1.63379 cm
$2\cdot ED^2$ = 5.33855 cm^2
AC = 6.92711 cm
CB = 7.00056 cm
$\frac{AC}{CB}$ = 0.98951
CB = 7.00056 cm
AB = 13.53894 cm
AB^2 = 183.30280 cm^2
CM = 3.50028 cm
C
AB = 13.53894 cm
E
M
CA^2+CB^2 = 96.99265 cm^2
K
A
D
B
J
KJ = 13.92767 cm
CA^2 = 47.98479 cm^2
CB^2 = 49.00786 cm^2
DF = 6.96383 cm
DE = 1.63379 cm
$\frac{DF}{DE}$ = 4.26238
DF = 6.96383 cm
AC = 6.92711 cm
CB = 7.00056 cm
$\frac{AC+CB}{2}$ = 6.96383 cm
$\sqrt{\left(\frac{CA}{2}+\frac{CB}{2}\right)^2}$ = 6.96383 cm
DJ^2 = 48.49497 cm^2
$\frac{AB}{2}$ = 6.76947 cm
EB = 6.96383 cm
DJ = 6.96383 cm
DJ = 6.96383 cm
$\frac{AC+CB}{2}^2$ = 48.49497 cm^2
$\sqrt{\frac{AC+CB}{2}^2-\frac{AB}{2}^2}$ = 1.63379 cm
AC = 6.92711 cm
BC = 7.00056 cm
DE = 1.63379 cm
AC+BC = 13.92767 cm
$\sqrt{\frac{AC+CB}{2}^2-\frac{AB}{2}^2}$ -DE = 0.00000 cm
$\frac{(AC+BC)}{DJ}$ = 2.00000


F
CA = 2.16154 cm
CB = 14.00979 cm
DJ = 8.08567 cm
CB+CA = 16.17133 cm
$\left(\frac{CA}{2}+\frac{CB}{2}\right)^2 = 65.37801\ cm^2$
$DJ^2 = 65.37801\ cm^2$
CA = 2.16154 cm
ED = 1.74953 cm
$2 \cdot ED^2 = 6.12169\ cm^2$
AC = 2.16154 cm
CB = 14.00979 cm
CB = 14.00979 cm
AB = 15.78824 cm
$\frac{AC}{CB} = 0.15429$
$AB^2 = 249.26865\ cm^2$
E
C
AB = 15.78824 cm
$CA^2+CB^2 = 200.94651\ cm^2$
K
A
D
B
J
KJ = 16.17133 cm
$CA^2 = 4.67227\ cm^2$
$CB^2 = 196.27424\ cm^2$
DF = 8.08567 cm
DE = 1.74953 cm
$\frac{DF}{DE} = 4.62163$
DF = 8.08567 cm
AC = 2.16154 cm
CB = 14.00979 cm
$\frac{AC+CB}{2} = 8.08567\ cm$
$\sqrt{\left(\frac{CA}{2}+\frac{CB}{2}\right)^2} = 8.08567\ cm$
$DJ^2 = 65.37801\ cm^2$
$\frac{AB}{2} = 7.89412\ cm$
EB = 8.08567 cm
DJ = 8.08567 cm
DJ = 8.08567 cm
$\sqrt{\frac{AC+CB}{2}^2 - \frac{AB}{2}^2} = 1.74953\ cm$
$\frac{AC+CB}{2}^2 = 65.37801\ cm^2$
DE = 1.74953 cm
AC = 2.16154 cm
BC = 14.00979 cm
AC+BC = 16.17133 cm
$\sqrt{\frac{AC+CB}{2}^2 - \frac{AB}{2}^2} - DE = 0.00000\ cm$
$\frac{(AC+BC)}{DJ} = 2.00000$

Perfect Π 101420

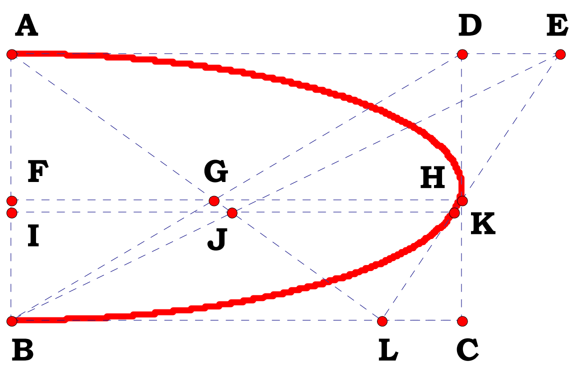
Basic Analog Grammar

John Clark

John 312

$$\frac{2 \cdot N_3 \cdot N_2 - 2 \cdot N_2}{N_3^{\,2} - 2 \cdot N_3 + 2} = 4.2$$

Curve of the Equation A From 2013.



$N_1 \equiv 9999999999$

$N_2 \equiv 7$

$N_3 \equiv 4$

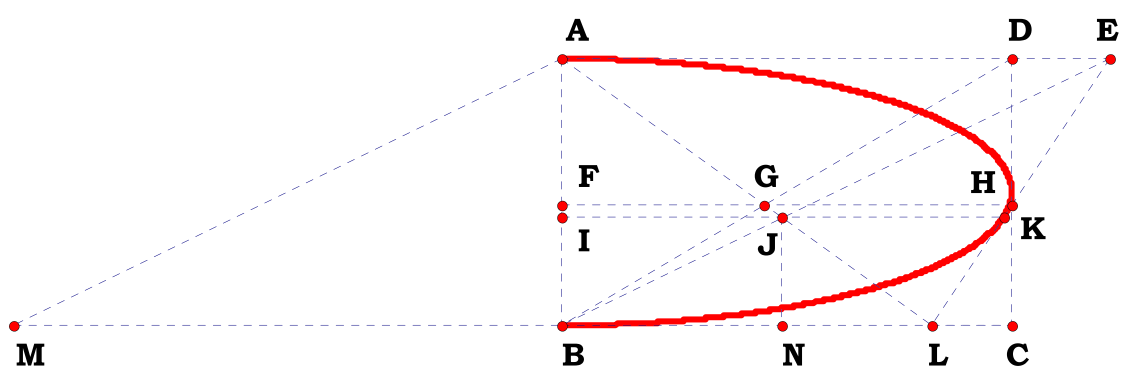
$AB := N_1$

$AD := N_2 \quad BC := AD$

$AF := \dfrac{AB}{N_3}$

$BF := AB - AF \quad FG := \dfrac{BC \cdot BF}{AB} \quad BL := \dfrac{FG \cdot AB}{AF} \quad CL := BC - BL$

$DE := \dfrac{CL \cdot AF}{BF} \quad AE := AD + DE \quad \sqrt{BL \cdot AE} - AD = 0 \quad JN := \dfrac{AB \cdot BL}{AE + BL}$



$BN := \dfrac{AE \cdot JN}{AB} \quad IK := 2 \cdot BN \quad IK - \dfrac{2 \cdot N_3 \cdot N_2 - 2 \cdot N_2}{N_3^{\,2} - 2 \cdot N_3 + 2} = 0 \quad IK = 4.2$

$00 = 2.34950$ cm

$N_00 = 10.11767$ cm

$N_10 = 7.59534$ cm

$N_20 = 13.47764$ cm

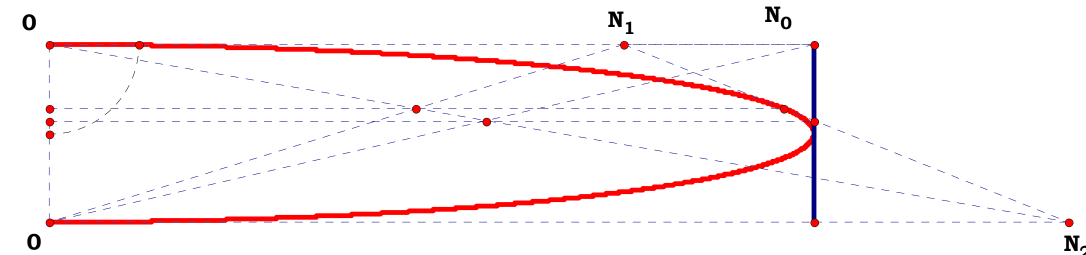
$N_10 \cdot N_20 - N_00^2 = 0.00000$ cm^2

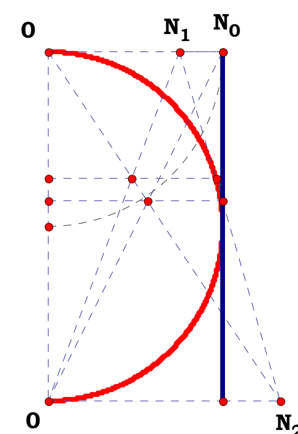
$N_0 = 4.30631$

$N_1 = 3.23275$

$N_2 = 5.73638$

$N_1 \cdot N_2 - N_0^2 = 0.00000$





$00 = 4.61433$ cm

$N_00 = 2.30717$ cm

$N_10 = 1.73199$ cm

$N_20 = 3.07335$ cm

$N_10 \cdot N_20 - N_00^2 = 0.00000$ cm^2

$N_0 = 0.50000$

$N_1 = 0.37535$

$N_2 = 0.66604$

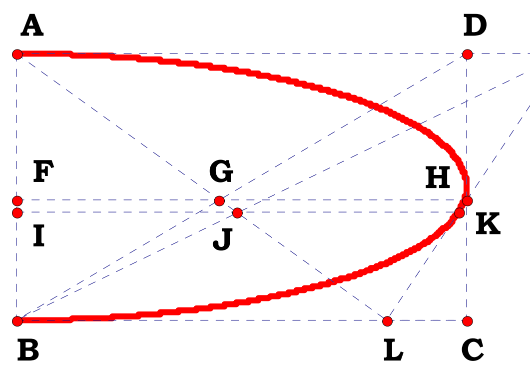
$N_1 \cdot N_2 - N_0^2 = 0.00000$

After one acquires the equation, even if one put 0 in for the unit of the geometry, the equation remains the same for a circle and ellipse. This means, that no matter how one envision the circle, larger than largest or not at all its definition remains the same.

Curve of the Equation A From 2013.

Proportion is independent of the naming convention.

$$\frac{2\cdot N_3\cdot N_2-2\cdot N_2}{N_3^{\,2}-2\cdot N_3+2}=4.2$$



$N_1 \equiv 0$

$N_2 \equiv 7$

$N_3 \equiv 4$

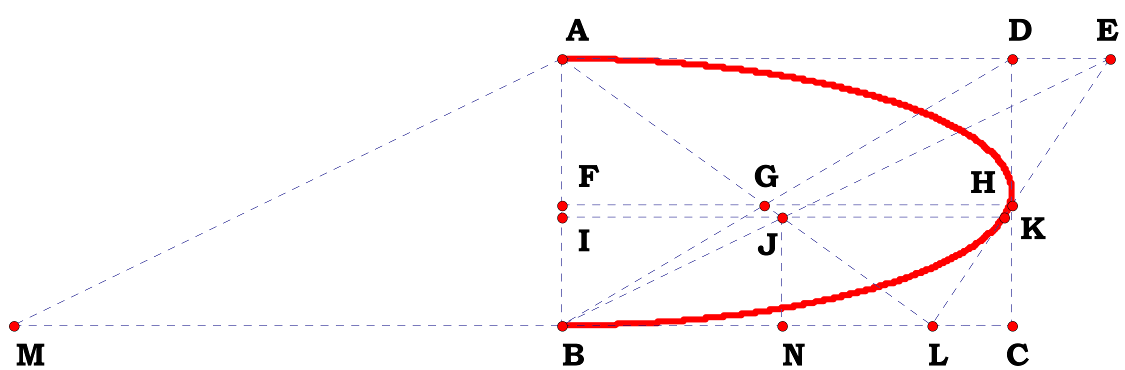
$AB := N_1$

$AD := N_2 \quad BC := AD$

$AF := \dfrac{AB}{N_3}$

$BF := AB - AF \quad FG := \dfrac{BC\cdot BF}{AB} \quad BL := \dfrac{FG\cdot AB}{AF} \quad CL := BC - BL$

$DE := \dfrac{CL\cdot AF}{BF} \quad AE := AD + DE \quad \sqrt{BL\cdot AE} - AD = ▪ \quad JN := \dfrac{AB\cdot BL}{AE+BL}$



$BN := \dfrac{AE\cdot JN}{AB} \quad IK := 2\cdot BN \quad IK - \dfrac{2\cdot N_3\cdot N_2-2\cdot N_2}{N_3^{\,2}-2\cdot N_3+2} = ▪ \quad IK = ▪$

00 = 2.34950 cm

$N_0$0 = 10.11767 cm

$N_1$0 = 7.59534 cm

$N_2$0 = 13.47764 cm

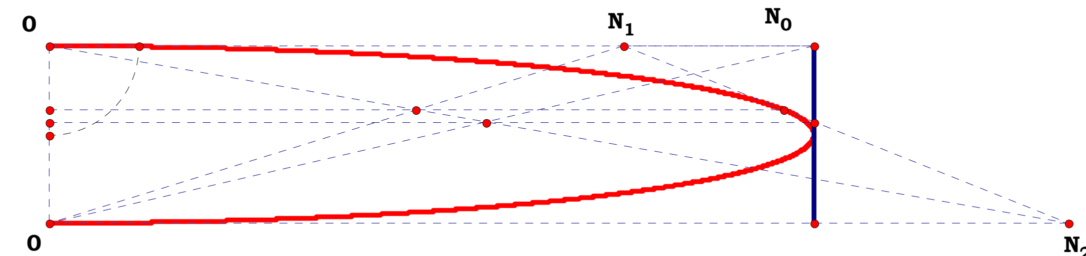
$N_1$0·$N_2$0-$N_0$0^2 = 0.00000 cm^2

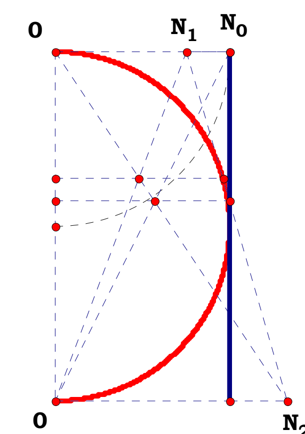
N_0 = 4.30631

N_1 = 3.23275

N_2 = 5.73638

$N_1 \cdot N_2 - N_0^2$ = 0.00000





00 = 4.61433 cm

$N_0$0 = 2.30717 cm

$N_1$0 = 1.73199 cm

$N_2$0 = 3.07335 cm

$N_1$0·$N_2$0-$N_0$0^2 = 0.00000 cm^2

N_0 = 0.50000

N_1 = 0.37535

N_2 = 0.66604

$N_1 \cdot N_2 - N_0^2$ = 0.00000

After one acquires the equation, even if one put 0 in for the unit of the geometry, the equation remains the same for a circle and ellipse. This means, that no matter how one envision the circle, larger than largest or not at all its definition remains the same.

110919

Descriptions.

Unit.

$AB := 1$

Given.

$N_1 := 2 \qquad BC := N_1$

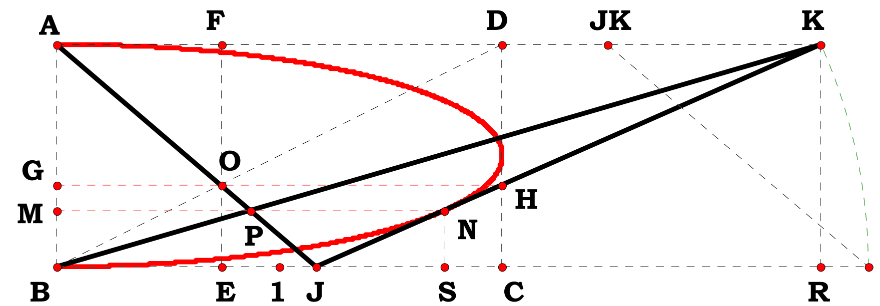
$N_2 := .73678 \qquad BE := N_2$

$$EO := \frac{AB \cdot BE}{BC} \qquad BJ := \frac{BE \cdot AB}{AB - EO} \qquad AK := \frac{(BC - BJ) \cdot AB}{EO} + BJ$$

$$MP := \frac{AK \cdot BJ}{BJ + AK} \qquad BM := \frac{AB \cdot MP}{AK} \qquad JK := \sqrt{AB^2 + (AK - BJ)^2}$$

$$JR := \sqrt{JK^2 - AB^2} \qquad JS := \frac{JR \cdot BM}{AB} \qquad MN := BJ + JS$$

Curve of the Equation A



BC = 2.00000 AK = 3.42901
BE = 0.73678 MP = 0.87041
EO = 0.36839 BM = 0.25384
BJ = 1.16652 JK = 2.47363
MN = 1.74082

Definitions.

$EO = 0.36839 \quad BJ = 1.166511 \quad AK = 3.429029 \quad MP = 0.870409$

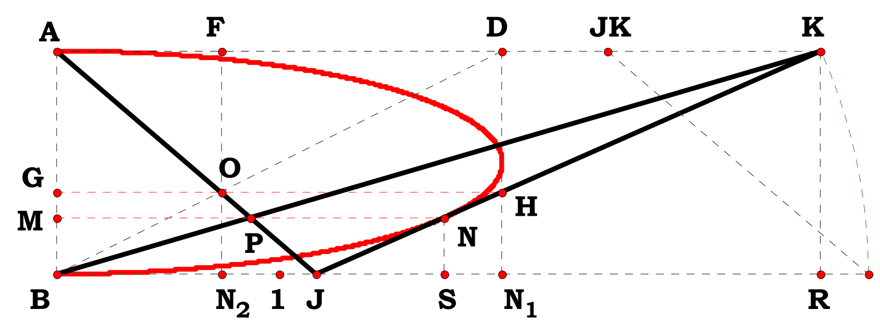
$BM = 0.253835 \quad JK = 2.473659 \quad MN = 1.740818$

$$EO - \frac{N_2}{N_1} = 0 \qquad BJ - \frac{N_2 \cdot N_1}{N_1 - N_2} = 0 \qquad AK - \frac{N_1 \cdot (N_1 - N_2)}{N_2} = 0$$

$$MP - \frac{N_1 \cdot N_2 \cdot (N_1 - N_2)}{N_1^2 - 2 \cdot N_1 \cdot N_2 + 2 \cdot N_2^2} = 0 \qquad BM - \frac{N_2^2}{N_1^2 - 2 \cdot N_1 \cdot N_2 + 2 \cdot N_2^2} = 0$$

$$JK - \frac{\sqrt{N_1^6 - 4 \cdot N_1^5 \cdot N_2 + 4 \cdot N_1^4 \cdot N_2^2 + N_1^2 \cdot N_2^2 - 2 \cdot N_1 \cdot N_2^3 + N_2^4}}{N_2 \cdot (N_1 - N_2)} = 0$$

$$JR - \frac{N_1^2 \cdot (N_1 - 2 \cdot N_2)}{N_2 \cdot (N_1 - N_2)} = 0 \qquad JS - \frac{N_1^2 \cdot N_2 \cdot (N_1 - 2 \cdot N_2)}{(N_1 - N_2) \cdot (N_1^2 - 2 \cdot N_1 \cdot N_2 + 2 \cdot N_2^2)} = 0 \qquad MN - \frac{2 \cdot N_1 \cdot N_2 \cdot (N_1 - N_2)}{N_1^2 - 2 \cdot N_1 \cdot N_2 + 2 \cdot N_2^2} = 0$$



$N_1 = 2.00000 \quad AK = 3.42901$

$N_2 = 0.73678 \quad MP = 0.87041$

$EO = 0.36839 \quad BM = 0.25384$

$BJ = 1.16652 \quad JK = 2.47363$

$MN = 1.74082$

$$\frac{2 \cdot N_1 \cdot N_2 \cdot (N_1 - N_2)}{(N_1^2 - 2 \cdot N_1 \cdot N_2) + 2 \cdot N_2^2} = 1.74082$$

$$\frac{2 \cdot N_1 \cdot N_2 \cdot (N_1 - N_2)}{(N_1^2 - 2 \cdot N_1 \cdot N_2) + 2 \cdot N_2^2} - MN = 0.00000$$

Curve of the Equation B

Unit. $AB := 1$

Given. $X_1 := 6 \quad X_2 := 20$

$Y_1 := 20 \quad Y_2 := 10$

Descriptions.

$$AC := \frac{X_2}{Y_2} \qquad AE := \frac{X_1}{Y_1} \qquad EM := AC \cdot AE \qquad AF := \frac{AE \cdot AC}{AC - EM}$$

$$CJ := \frac{(AB - AF) \cdot AC}{EM} + AF \qquad OP := \frac{CJ \cdot AF}{AF + CJ} \qquad AO := \frac{AC \cdot OP}{CJ}$$

$$FH := CJ - AF \qquad FG := \frac{FH \cdot AO}{AC} \qquad AG := AF + FG$$

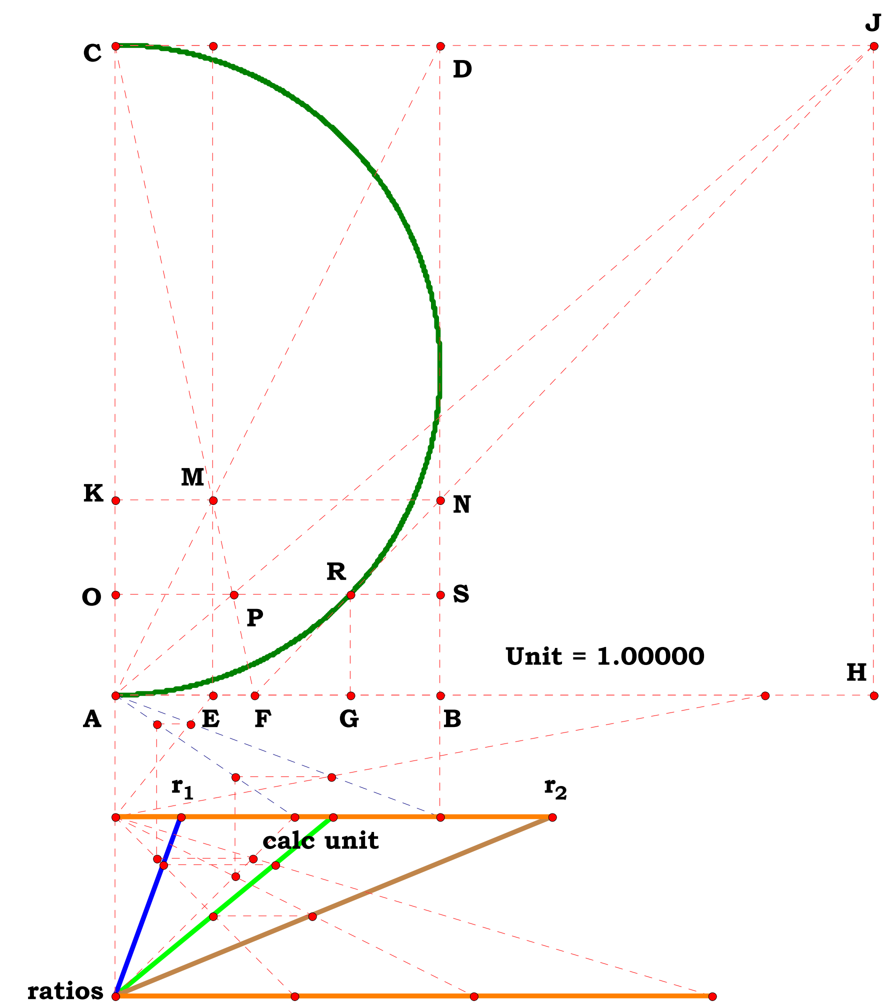
Definitions.

$$AC - \frac{X_2}{Y_2} = 0 \qquad AE - \frac{X_1}{Y_1} = 0 \qquad EM - \frac{X_1 \cdot X_2}{Y_1 \cdot Y_2} = 0 \qquad AF - \frac{X_1}{Y_1 - X_1}$$

$$CJ - \frac{Y_1 - X_1}{X_1} = 0 \qquad OP - \frac{X_1 \cdot (Y_1 - X_1)}{2 \cdot X_1^2 - 2 \cdot X_1 \cdot Y_1 + Y_1^2} = 0$$

$$AO - \frac{X_1^2 \cdot X_2}{Y_2 \cdot \left(2 \cdot X_1^2 - 2 \cdot X_1 \cdot Y_1 + Y_1^2\right)} = 0 \qquad FH - \frac{Y_1 \cdot (2 \cdot X_1 - Y_1)}{X_1 \cdot (X_1 - Y_1)} = 0$$

$$FG - \frac{X_1 \cdot Y_1 \cdot (2 \cdot X_1 - Y_1)}{(X_1 - Y_1) \cdot \left(2 \cdot X_1^2 - 2 \cdot X_1 \cdot Y_1 + Y_1^2\right)} = 0 \qquad AG - \frac{2 \cdot X_1 \cdot (Y_1 - X_1)}{2 \cdot X_1^2 - 2 \cdot X_1 \cdot Y_1 + Y_1^2} = 0$$



$r_1 = 0.30000$ $X_1 = 6.00000$ $Y_1 = 20.00000$

$r_2 = 2.00000$ $X_2 = 20.00000$ $Y_2 = 10.00000$

$A = 0.00000$ $AE = 0.30000$ $AF = 0.42857$

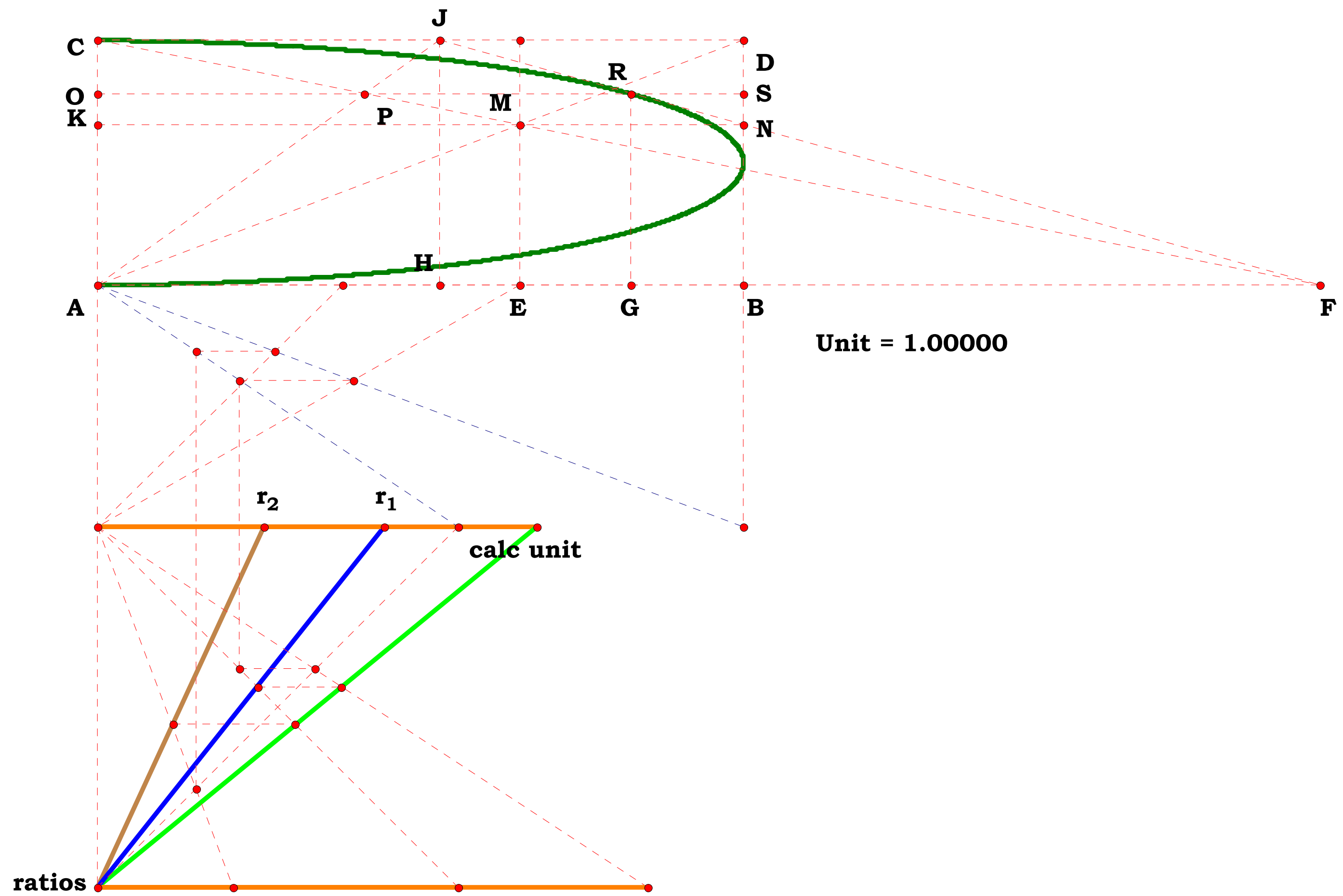
$AG = 0.72414$ $AB = 1.00000$ $AH = 2.33333$

$AO = 0.31034$ $AK = 0.60000$ $AC = 2.00000$

$\frac{X_1}{Y_1}\text{-}AE = 0.00000$ $\quad \frac{Y_1\text{-}X_1}{X_1}\text{-}AH = 0.00000$ $\quad \frac{X_1 \cdot X_2}{Y_1 \cdot Y_2}\text{-}AK = 0.00000$

$\frac{X_1}{Y_1\text{-}X_1}\text{-}AF = 0.00000$ $\quad \frac{X_1{}^2 \cdot X_2}{Y_2 \cdot ((2 \cdot X_1{}^2 \text{-} 2 \cdot X_1 \cdot Y_1) + Y_1{}^2)}\text{-}AO = 0.00000$

$\frac{2 \cdot X_1 \cdot (Y_1\text{-}X_1)}{(2 \cdot X_1{}^2 \text{-} 2 \cdot X_1 \cdot Y_1) + Y_1{}^2}\text{-}AG = 0.00000$ $\quad \frac{X_2}{Y_2}\text{-}AC = 0.00000$



$r_1 = 0.65425$ $\quad r_2 = 0.37831$ $\quad A = 0.00000$ $\quad AG = 0.82619$ $\quad AO = 0.29572$

$X_1 = 13.08506$ $\quad X_2 = 3.78310$ $\quad AE = 0.65425$ $\quad AB = 1.00000$ $\quad AK = 0.24751$

$Y_1 = 20.00000$ $\quad Y_2 = 10.00000$ $\quad AF = 1.89229$ $\quad AH = 0.52846$ $\quad AC = 0.37831$

$$\frac{X_1}{Y_1} - AE = 0.00000 \qquad \frac{Y_1 - X_1}{X_1} - AH = 0.00000 \qquad \frac{X_1 \cdot X_2}{Y_1 \cdot Y_2} - AK = 0.00000$$

$$\frac{X_1}{Y_1 - X_1} - AF = 0.00000 \qquad \frac{X_1{}^2 \cdot X_2}{Y_2 \cdot \left(\left(2 \cdot X_1{}^2 - 2 \cdot X_1 \cdot Y_1\right) + Y_1{}^2\right)} - AO = 0.00000$$

$$\frac{2 \cdot X_1 \cdot (Y_1 - X_1)}{\left(2 \cdot X_1{}^2 - 2 \cdot X_1 \cdot Y_1\right) + Y_1{}^2} - AG = 0.00000 \qquad \frac{X_2}{Y_2} - AC = 0.00000$$

Unit. $A1 := 1$

Given. $D := 1.50675$

Perfect PI plate A

Descriptions.

$AB := \frac{1}{D}$ $\quad AT := \frac{A1}{2}$ $\quad BT := AB - AT$

$BP := \sqrt{BT^2 + AT^2}$ $\quad IP := \frac{AT}{BP \cdot A1}$

$BI := IP - BP$ $\quad BC := \frac{BT \cdot BI}{BP}$ $\quad AC := AB + BC$

$CI := \sqrt{AC \cdot (A1 - AC)}$ $\quad AI := \sqrt{AC^2 + CI^2}$

$I1 := \sqrt{CI^2 + (A1 - AC)^2}$

Definitions.

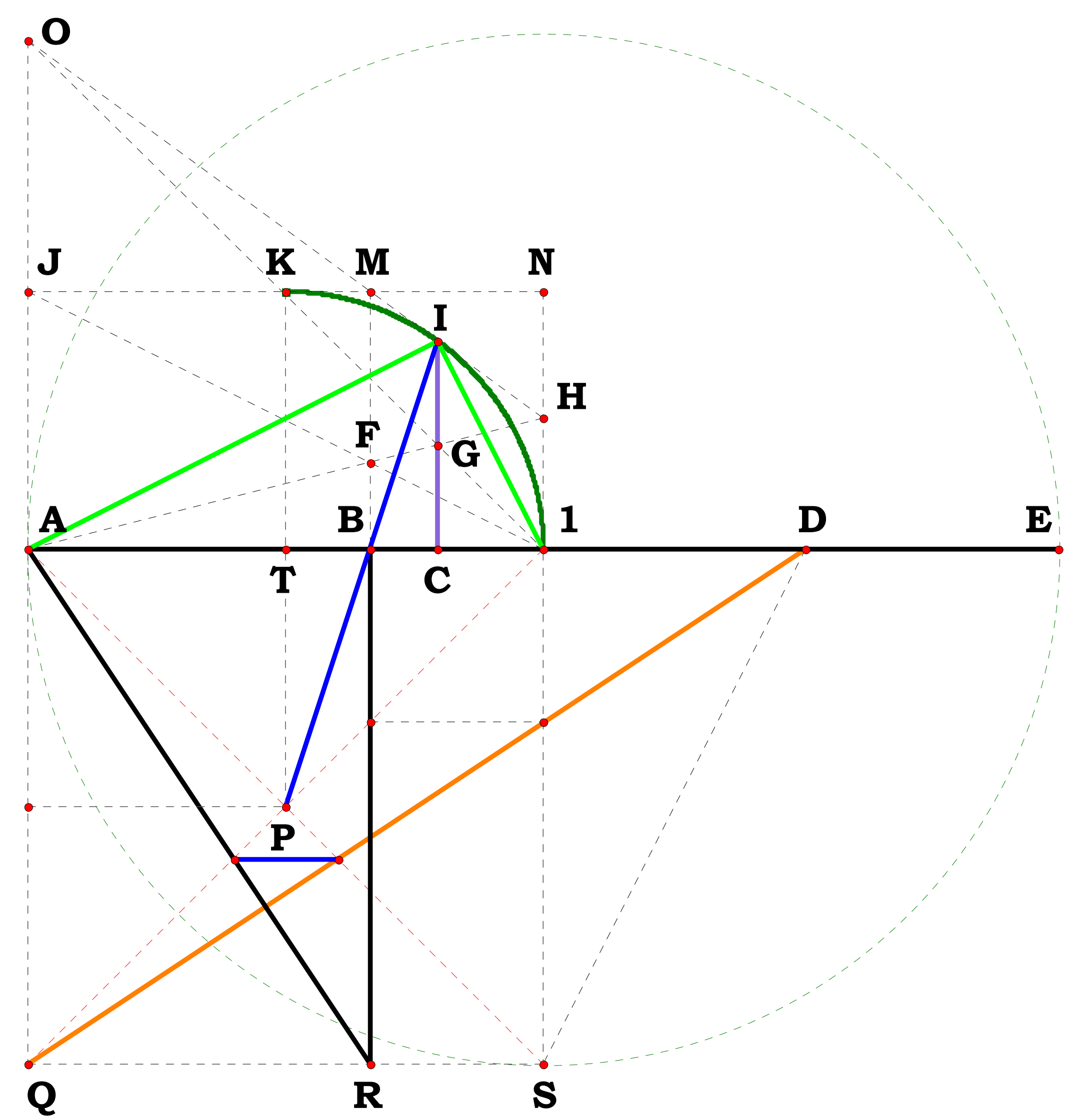
$AB - \frac{1}{D} = 0$ $\quad AT - \frac{1}{2} = 0$ $\quad BT - \left(\frac{1}{D} - \frac{1}{2}\right) = 0$

$BP - \frac{\sqrt{D^2 - 2 \cdot D + 2}}{\sqrt{2} \cdot D} = 0$ $\quad IP - \frac{\sqrt{2} \cdot D}{2 \cdot \sqrt{D^2 - 2 \cdot D + 2}} = 0$

$BI - \frac{\sqrt{2} \cdot (D - 1)}{D \cdot \sqrt{D^2 - 2 \cdot D + 2}} = 0$ $\quad BC - \frac{(1 - D) \cdot (D - 2)}{D \cdot \left(D^2 - 2 \cdot D + 2\right)} = 0$

$AC - \frac{1}{D^2 - 2 \cdot D + 2} = 0$ $\quad CI - \frac{(D - 1)}{\left(D^2 - 2 \cdot D + 2\right)} = 0$

$AI - \frac{1}{\sqrt{D^2 - 2 \cdot D + 2}} = 0$ $\quad I1 - \frac{(D - 1)}{\sqrt{D^2 - 2 \cdot D + 2}} = 0$



Perfect PI plate B

Unit. $AC := 1$

Given. $X := 12$

$Y := 20$

Descriptions.

$AX := \frac{X}{Y}$ $\quad AB := \frac{AC}{2}$ $\quad BX := AX - AB$

$OX := \sqrt{BX^2 + AB^2}$ $\quad EO := \frac{AB}{OX}$ $\quad EX := EO - OX$

$DX := \frac{BX \cdot EX}{OX}$ $\quad AD := AX + DX$ $\quad CD := AC - AD$

$DE := \sqrt{AD \cdot CD}$ $\quad AE := \sqrt{AD^2 + DE^2}$ $\quad CE := \sqrt{CD^2 + DE^2}$

Definitions.

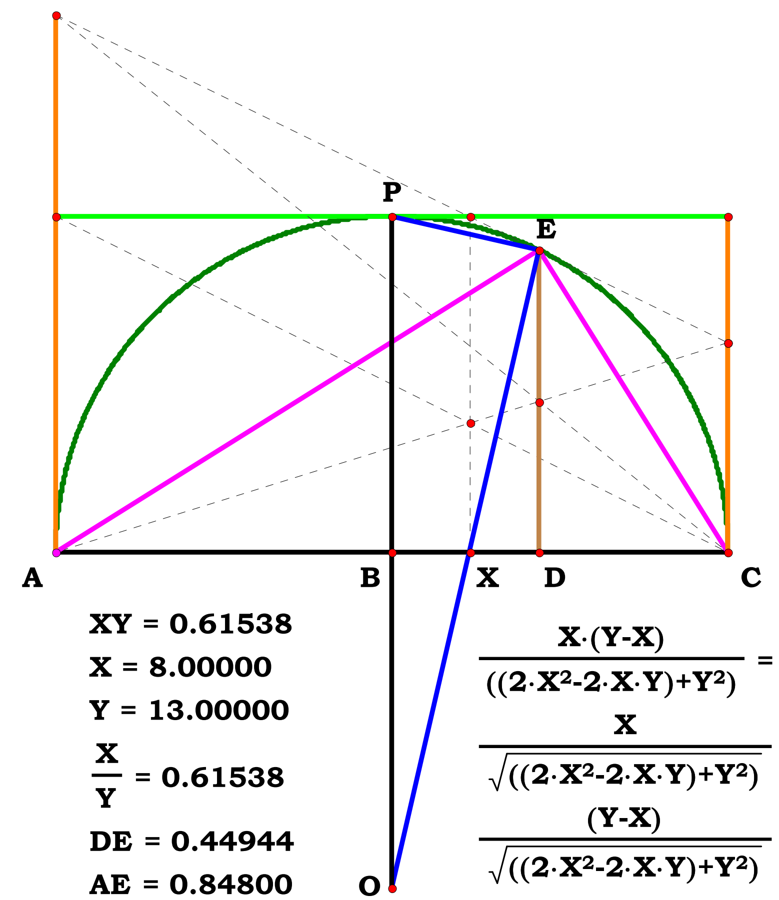
$AX - \frac{X}{Y} = 0$ $\quad AB - \frac{1}{2} = 0$ $\quad BX - \frac{2 \cdot X - Y}{2 \cdot Y} = 0$

$OX - \frac{\sqrt{2 \cdot X^2 - 2 \cdot X \cdot Y + Y^2}}{\sqrt{2} \cdot Y} = 0$ $\quad EO - \frac{\sqrt{2} \cdot Y}{2 \cdot \sqrt{2 \cdot X^2 - 2 \cdot X \cdot Y + Y^2}} = 0$

$EX - \frac{\sqrt{2} \cdot X \cdot (Y - X)}{Y \cdot \sqrt{2 \cdot X^2 - 2 \cdot X \cdot Y + Y^2}}$ $\quad DX - \frac{X \cdot (X - Y) \cdot (Y - 2 \cdot X)}{Y \cdot \left(2 \cdot X^2 - 2 \cdot X \cdot Y + Y^2\right)} = 0$

$AD - \frac{X^2}{2 \cdot X^2 - 2 \cdot X \cdot Y + Y^2}$ $\quad CD - \frac{(X - Y)^2}{2 \cdot X^2 - 2 \cdot X \cdot Y + Y^2} = 0$

$DE - \frac{X \cdot (Y - X)}{\left(2 \cdot X^2 + Y^2 - 2 \cdot X \cdot Y\right)} = 0$ $\quad AE - \frac{X}{\sqrt{2 \cdot X^2 - 2 \cdot X \cdot Y + Y^2}} = 0$ $\quad CE - \frac{(Y - X)}{\sqrt{2 \cdot X^2 - 2 \cdot X \cdot Y + Y^2}} = 0$



$(2 \cdot X^2 - 2 \cdot X \cdot Y) + Y^2 = 89.00000$

$Y - X = 5.00000$

$AE = 7.54309$ cm

$DE = 3.99783$ cm

$CE = 4.71443$ cm

$(2 \cdot AX^2 - 2 \cdot AX \cdot AC) + AC^2 = 41.66885$ cm²

$AC - AX = 3.42122$ cm

$XY = 0.61538$

$X = 8.00000$

$Y = 13.00000$

$\frac{X}{Y} = 0.61538$

$DE = 0.44944$

$AE = 0.84800$

$CE = 0.53000$

$\frac{X \cdot (Y-X)}{((2 \cdot X^2 - 2 \cdot X \cdot Y) + Y^2)} = 0.44944$ $\quad \frac{AX \cdot (AC-AX)}{((2 \cdot AX^2 - 2 \cdot AX \cdot AC) + AC^2)} = 0.44944$

$\frac{X}{\sqrt{((2 \cdot X^2 - 2 \cdot X \cdot Y) + Y^2)}} = 0.84800$ $\quad \frac{AX}{\sqrt{((2 \cdot AX^2 - 2 \cdot AX \cdot AC) + AC^2)}} = 0.84800$

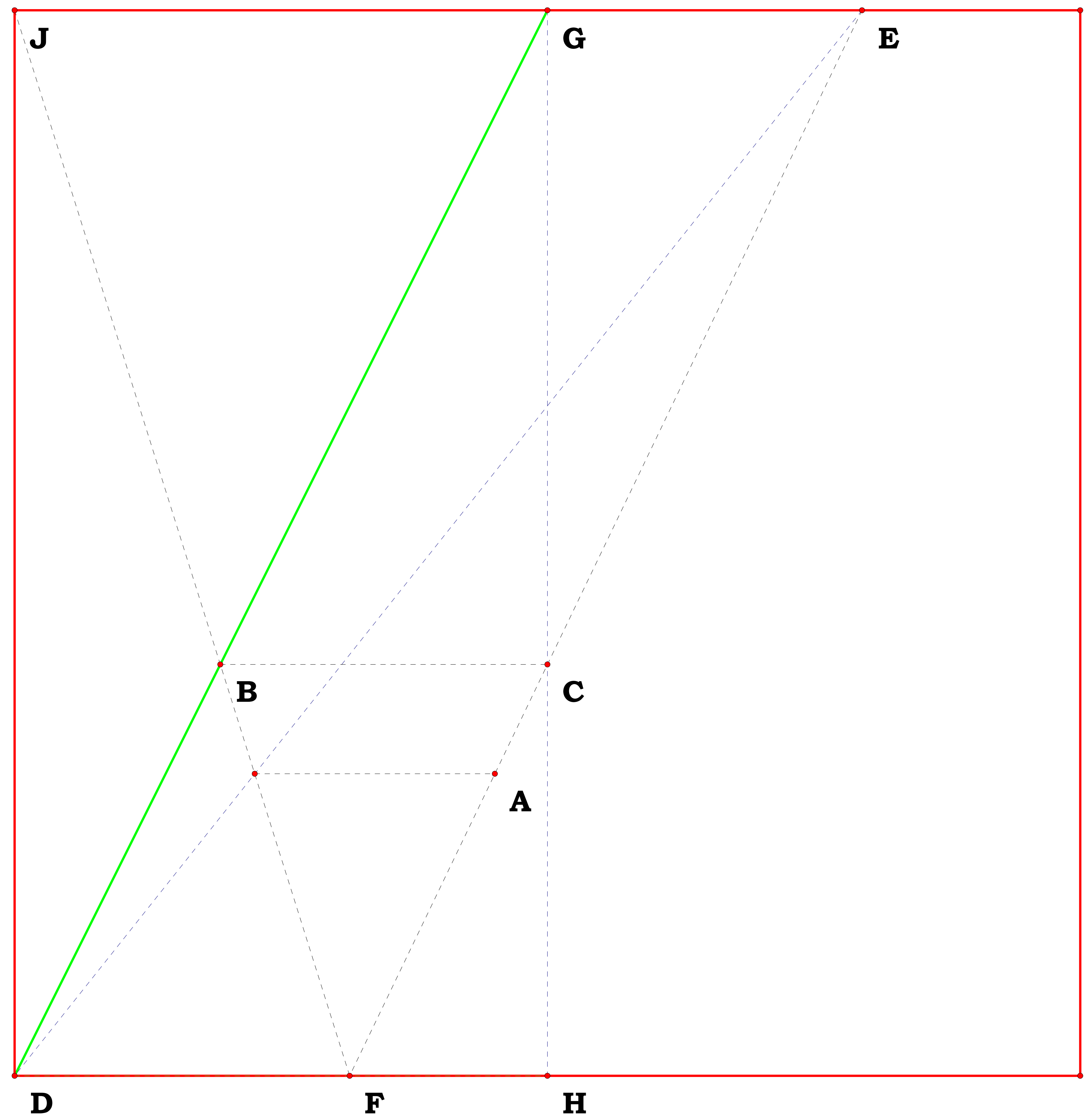
$\frac{(Y-X)}{\sqrt{((2 \cdot X^2 - 2 \cdot X \cdot Y) + Y^2)}} = 0.53000$ $\quad \frac{(AC-AX)}{\sqrt{((2 \cdot AX^2 - 2 \cdot AX \cdot AC) + AC^2)}} = 0.53000$

$\frac{X \cdot (Y-X)}{((2 \cdot X^2 - 2 \cdot X \cdot Y) + Y^2)} - DE = 0.00000$ $\quad \frac{AX \cdot (AC-AX)}{((2 \cdot AX^2 - 2 \cdot AX \cdot AC) + AC^2)} - DE = 0.00000$

$\frac{X}{\sqrt{((2 \cdot X^2 - 2 \cdot X \cdot Y) + Y^2)}} - AE = 0.00000$ $\quad \frac{AX}{\sqrt{((2 \cdot AX^2 - 2 \cdot AX \cdot AC) + AC^2)}} - AE = 0.00000$

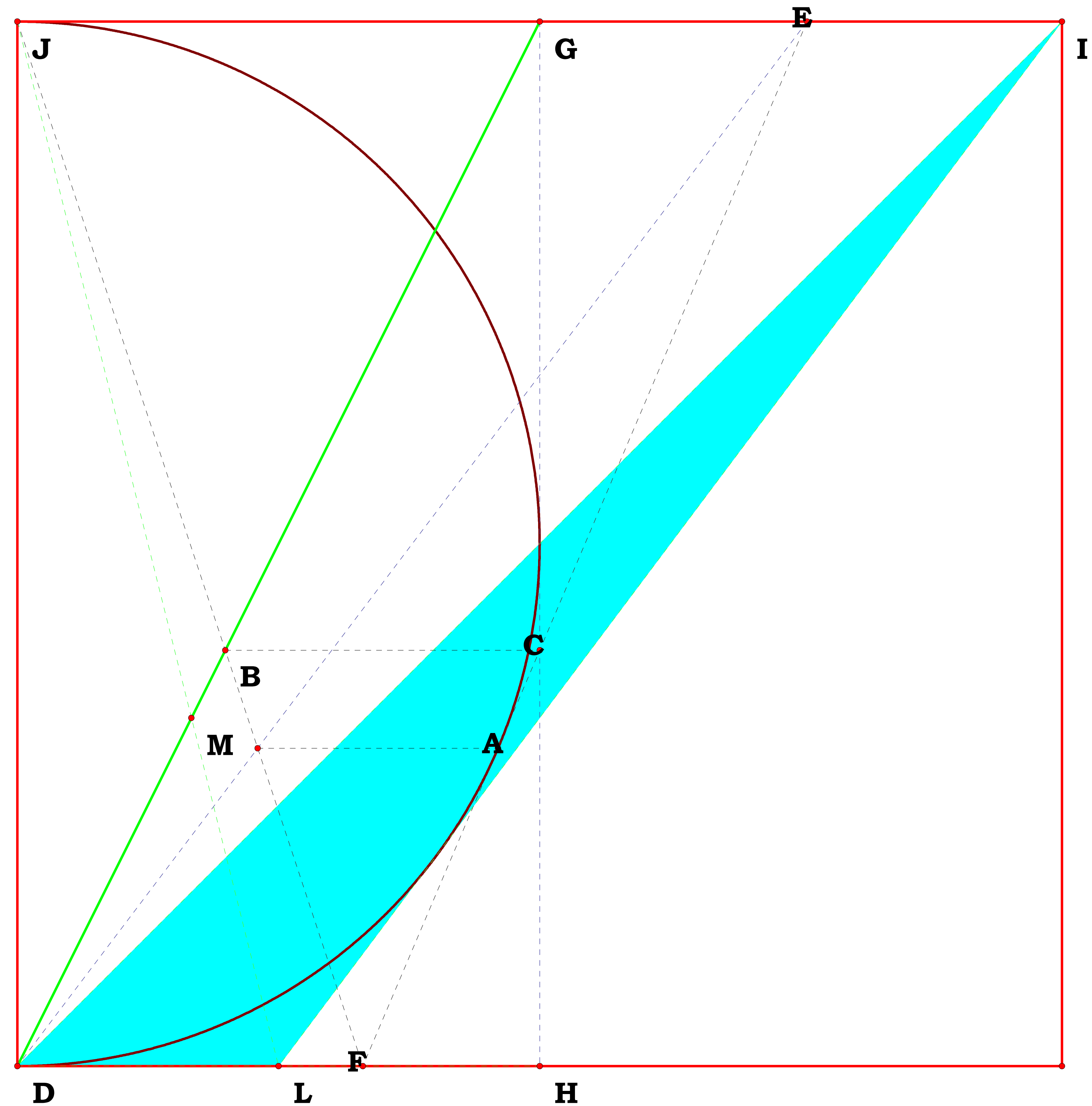
$\frac{(Y-X)}{\sqrt{((2 \cdot X^2 - 2 \cdot X \cdot Y) + Y^2)}} - CE = 0.00000$ $\quad \frac{(AC-AX)}{\sqrt{((2 \cdot AX^2 - 2 \cdot AX \cdot AC) + AC^2)}} - CE = 0.00000$

Unit = 1.00000



Unit = 1.00000

Show Objects



Area ⊙KJ = 112.02859 cm^2

Area △DGJ = 35.65981 cm^2

$$\frac{(\text{Area } \odot KJ)}{(\text{Area } \triangle DGJ)} = 3.14159$$

$$\frac{(\text{Area } \odot KJ)}{(\text{Area } \triangle DGJ)} - \pi = 0.00000$$

Area △DIL = 17.82990 cm^2

$$\frac{(\text{Area } \odot KJ)}{(\text{Area } \triangle DIL)} = 6.28319$$

DG = 13.35287 cm

DM = 4.45096 cm

$$\frac{DG}{DM} = 3.00000$$

Unit = 1.00000

Show Objects

Circle

Show Lines

Points

1

2

3

4

5

6

7

8

9

10

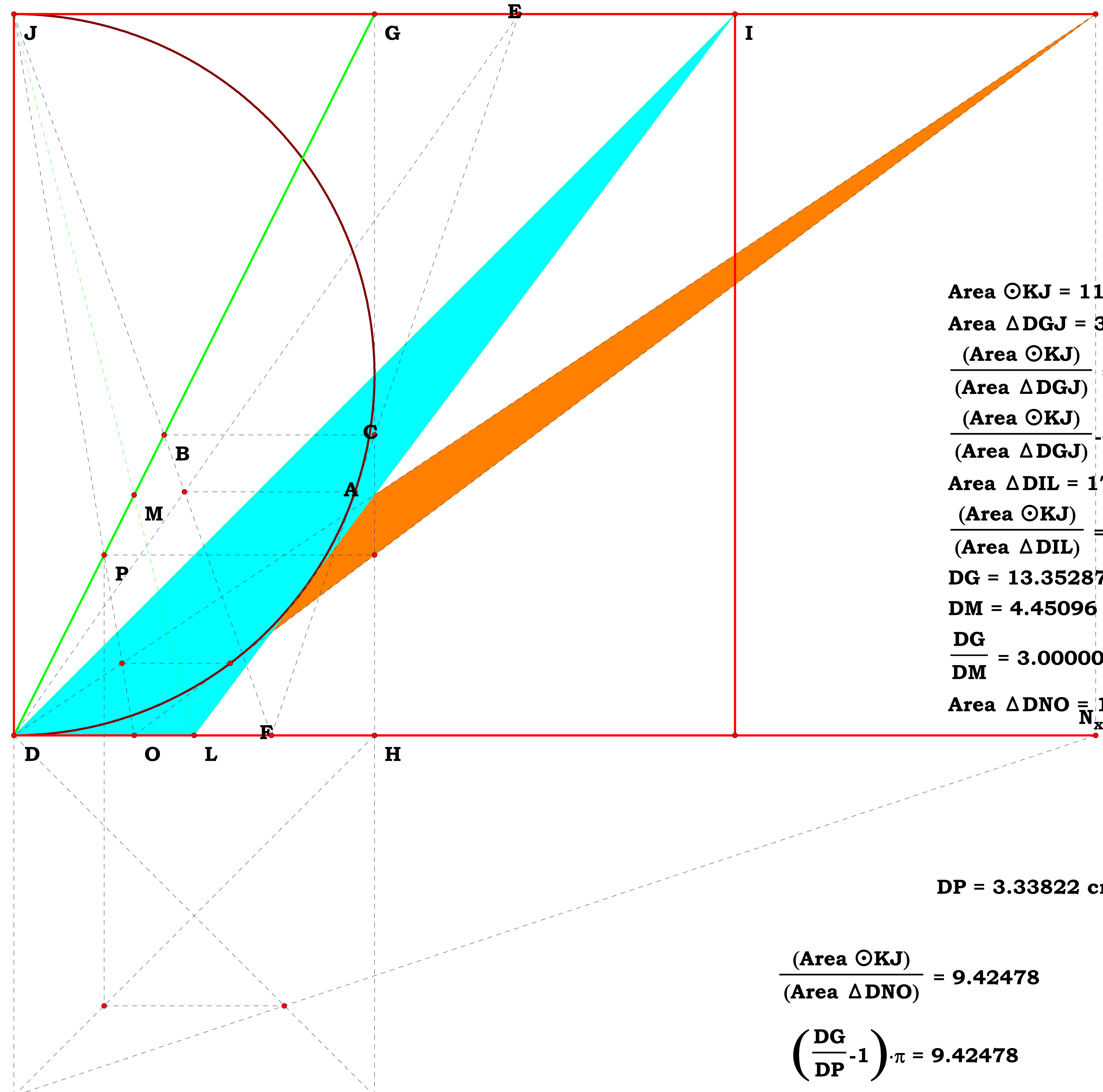
11

12

13

14

15



Area ⊙KJ = 112.02859 cm^2

Area ΔDGJ = 35.65981 cm^2

$$\frac{(\text{Area ⊙KJ})}{(\text{Area } \Delta\text{DGJ})} = 3.14159$$

$$\frac{(\text{Area ⊙KJ})}{(\text{Area } \Delta\text{DGJ})} - \pi = 0.00000$$

Area ΔDIL = 17.82990 cm^2

$$\frac{(\text{Area ⊙KJ})}{(\text{Area } \Delta\text{DIL})} = 6.28319$$

DG = 13.35287 cm

DM = 4.45096 cm

$$\frac{\text{DG}}{\text{DM}} = 3.00000$$

Area ΔDNO = 11.88660 cm^2

DP = 3.33822 cm

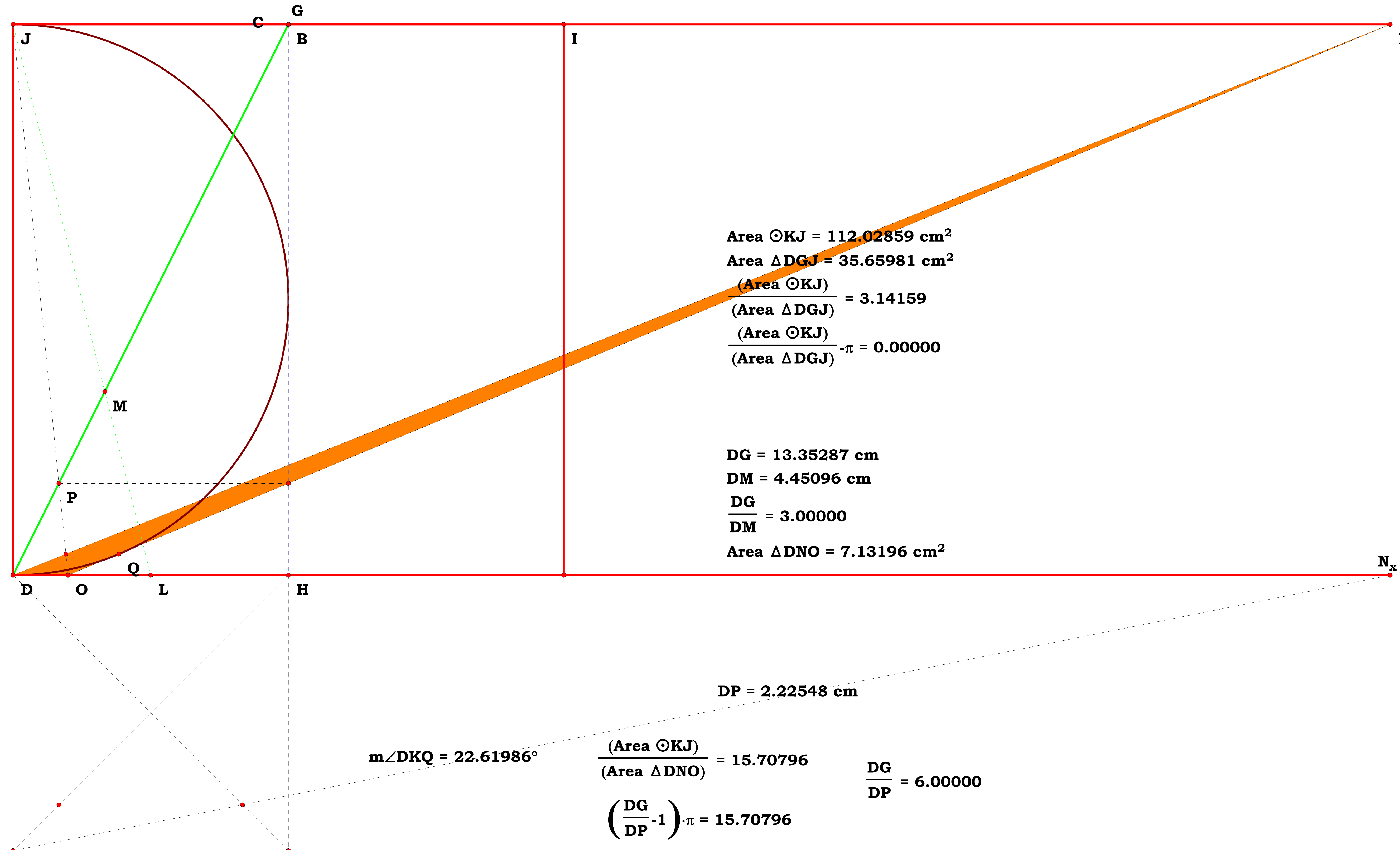
$$\frac{(\text{Area ⊙KJ})}{(\text{Area } \Delta\text{DNO})} = 9.42478$$

$$\left(\frac{\text{DG}}{\text{DP}} - 1\right)\cdot\pi = 9.42478$$

$$\frac{\text{DG}}{\text{DP}} = 4.00000$$

Unit = 1.00000

Show Objects
Circle
Show Lines
Points
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15



Area ⊙KJ = 112.02859 cm^2

Area ΔDGJ = 35.65981 cm^2

$$\frac{(\text{Area } \odot KJ)}{(\text{Area } \Delta DGJ)} = 3.14159$$

$$\frac{(\text{Area } \odot KJ)}{(\text{Area } \Delta DGJ)} - \pi = 0.00000$$

DG = 13.35287 cm

DM = 4.45096 cm

$$\frac{DG}{DM} = 3.00000$$

Area ΔDNO = 7.13196 cm^2

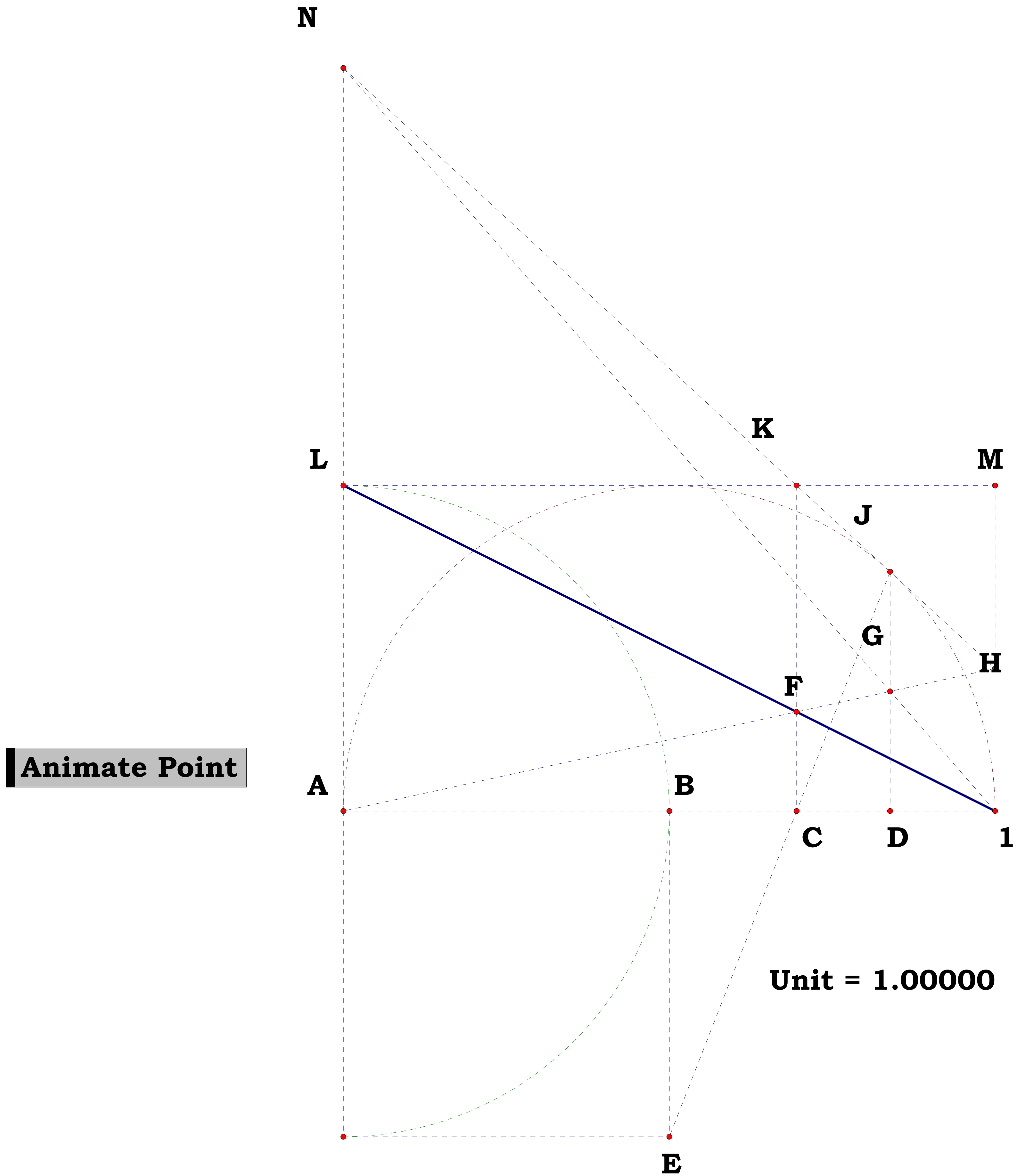
DP = 2.22548 cm

m$\angle$DKQ = 22.61986°

$$\frac{(\text{Area } \odot KJ)}{(\text{Area } \Delta DNO)} = 15.70796$$

$$\left(\frac{DG}{DP} - 1\right)\cdot\pi = 15.70796$$

$$\frac{DG}{DP} = 6.00000$$

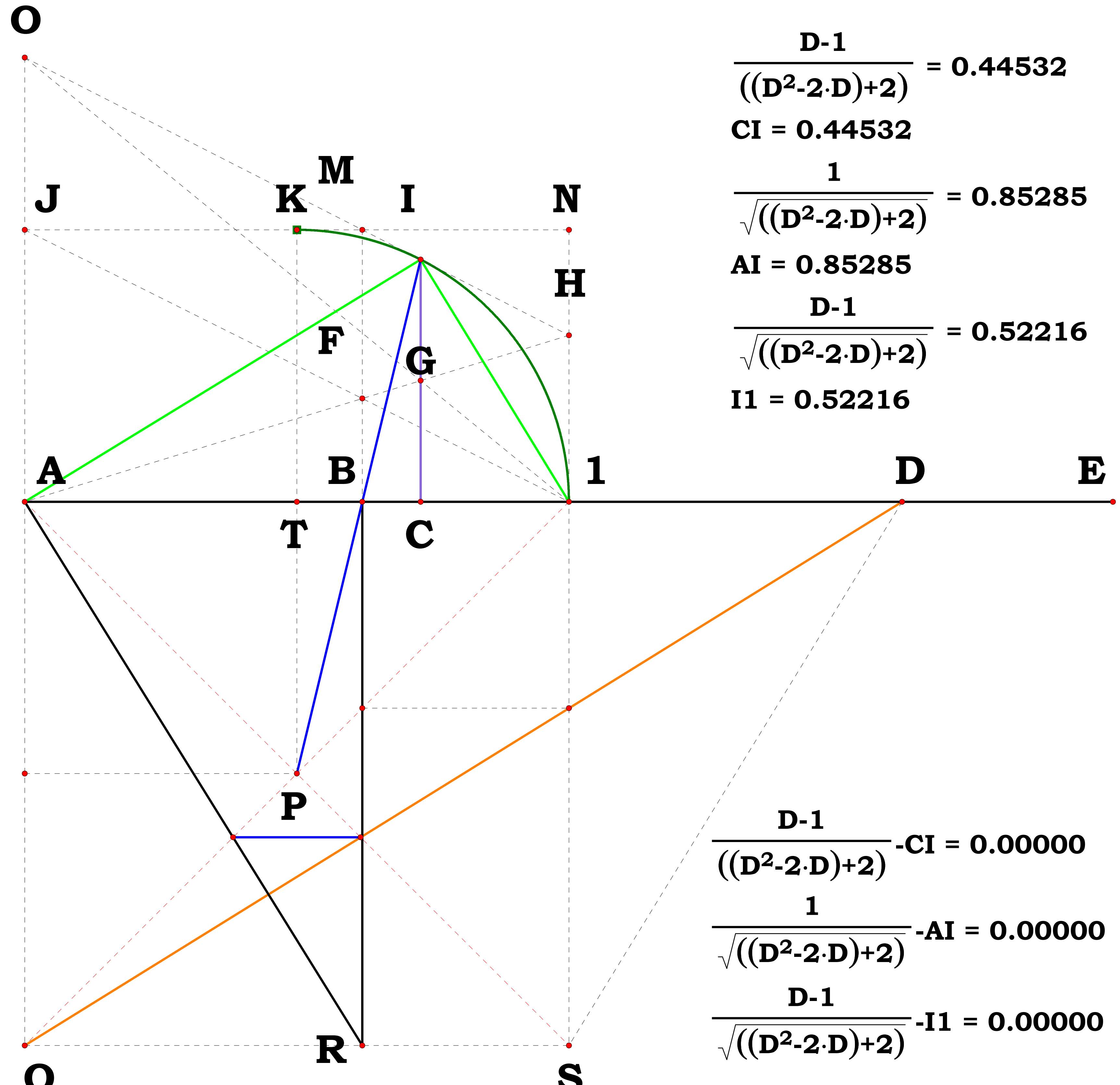


See Curve of the Equation in The Art of Prophecy

The semi-circle is project from the straight line L1 as F moves from L to 1.

Unit = 1.00000

D = 1.61226



$$\frac{D-1}{((D^2-2\cdot D)+2)} = 0.44532$$

CI = 0.44532

$$\frac{1}{\sqrt{((D^2-2\cdot D)+2)}} = 0.85285$$

AI = 0.85285

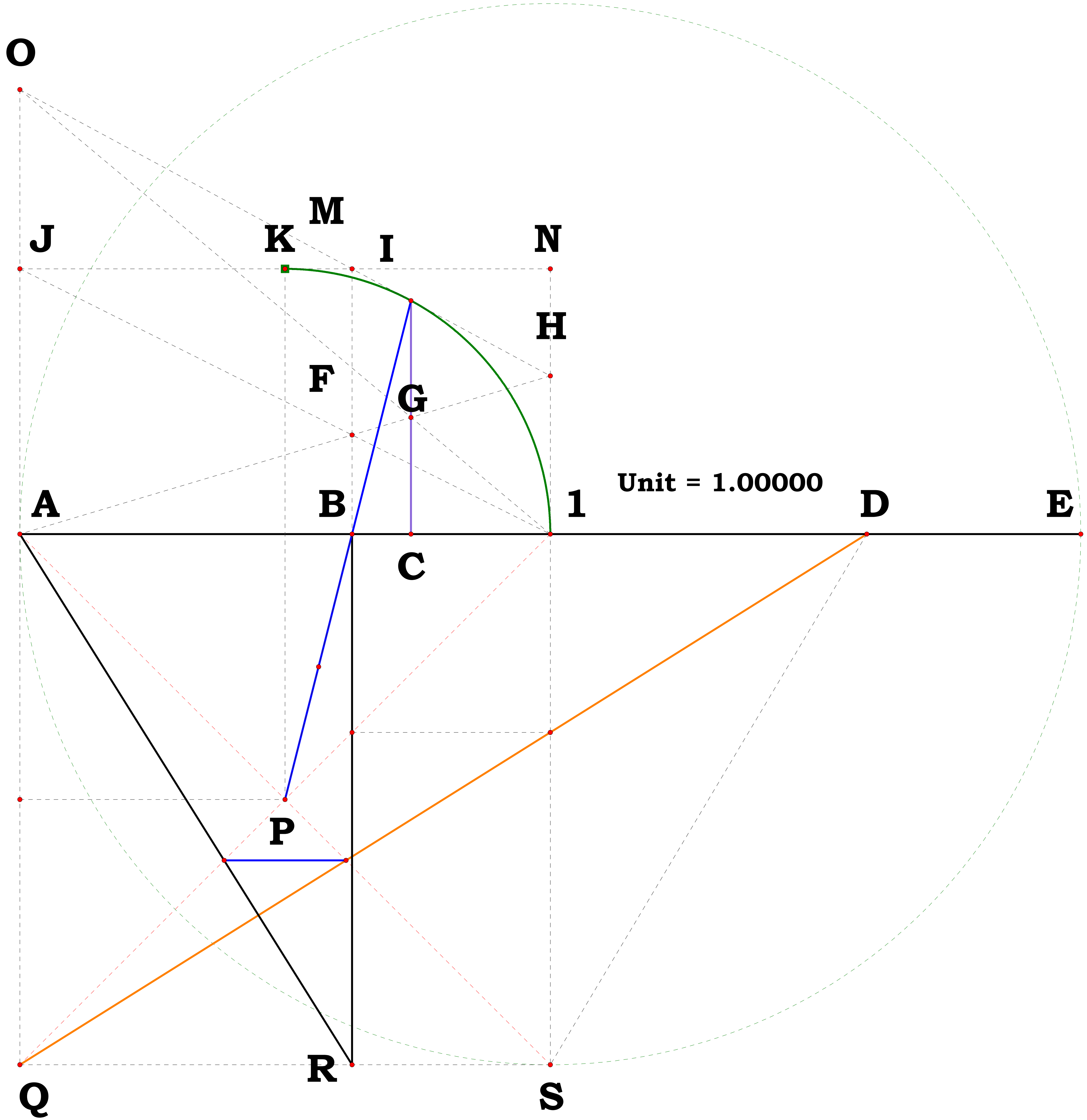
$$\frac{D-1}{\sqrt{((D^2-2\cdot D)+2)}} = 0.52216$$

I1 = 0.52216

$$\frac{D-1}{((D^2-2\cdot D)+2)}-CI = 0.00000$$

$$\frac{1}{\sqrt{((D^2-2\cdot D)+2)}}-AI = 0.00000$$

$$\frac{D-1}{\sqrt{((D^2-2\cdot D)+2)}}-I1 = 0.00000$$


O
M
J
K
I
N
H
F
G
Unit = 1.00000
A
B
1
D
E
C
P
R
Q
S

$N_1 = 1.35144$

$(N_1{}^2\text{-}2\cdot N_1)+2 = 1.12351$

$N_1\text{-}1 = 0.35144$

$$\frac{(N_1\text{-}1)}{((N_1{}^2\text{-}2\cdot N_1)+2)} = 0.31280$$

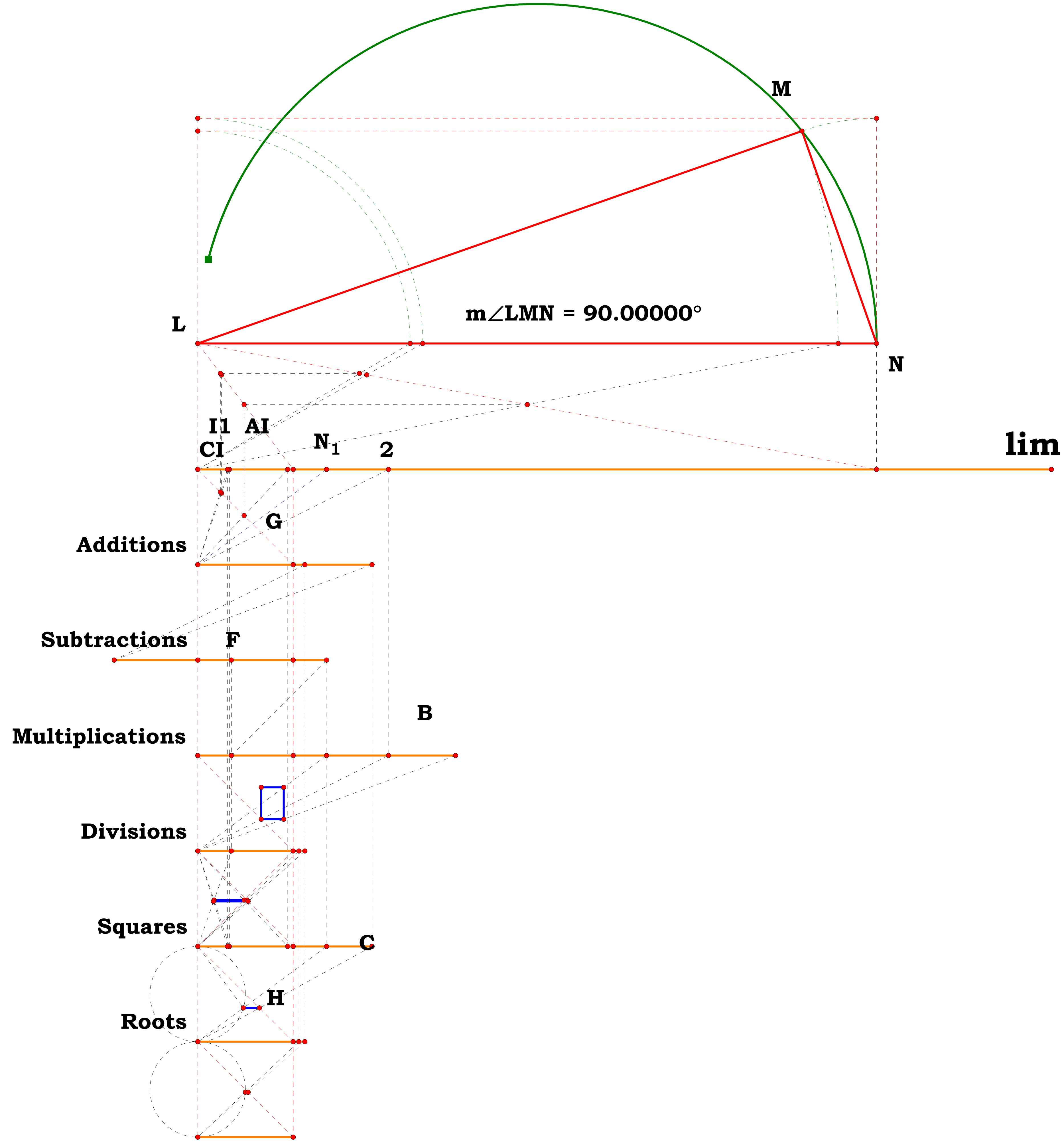
$$\frac{1}{\sqrt{((N_1{}^2\text{-}2\cdot N_1)+2)}} = 0.94343$$

$$\frac{(N_1\text{-}1)}{\sqrt{((N_1{}^2\text{-}2\cdot N_1)+2)}} = 0.33156$$

CI = 0.31280

AI = 0.94343

I1 = 0.33156



$N_1 = 2.50677$

$(N_1^2 - 2 \cdot N_1) + 2 = 3.27036$

$N_1 - 1 = 1.50677$

$$\frac{(N_1-1)}{((N_1^2-2\cdot N_1)+2)} = 0.46074$$

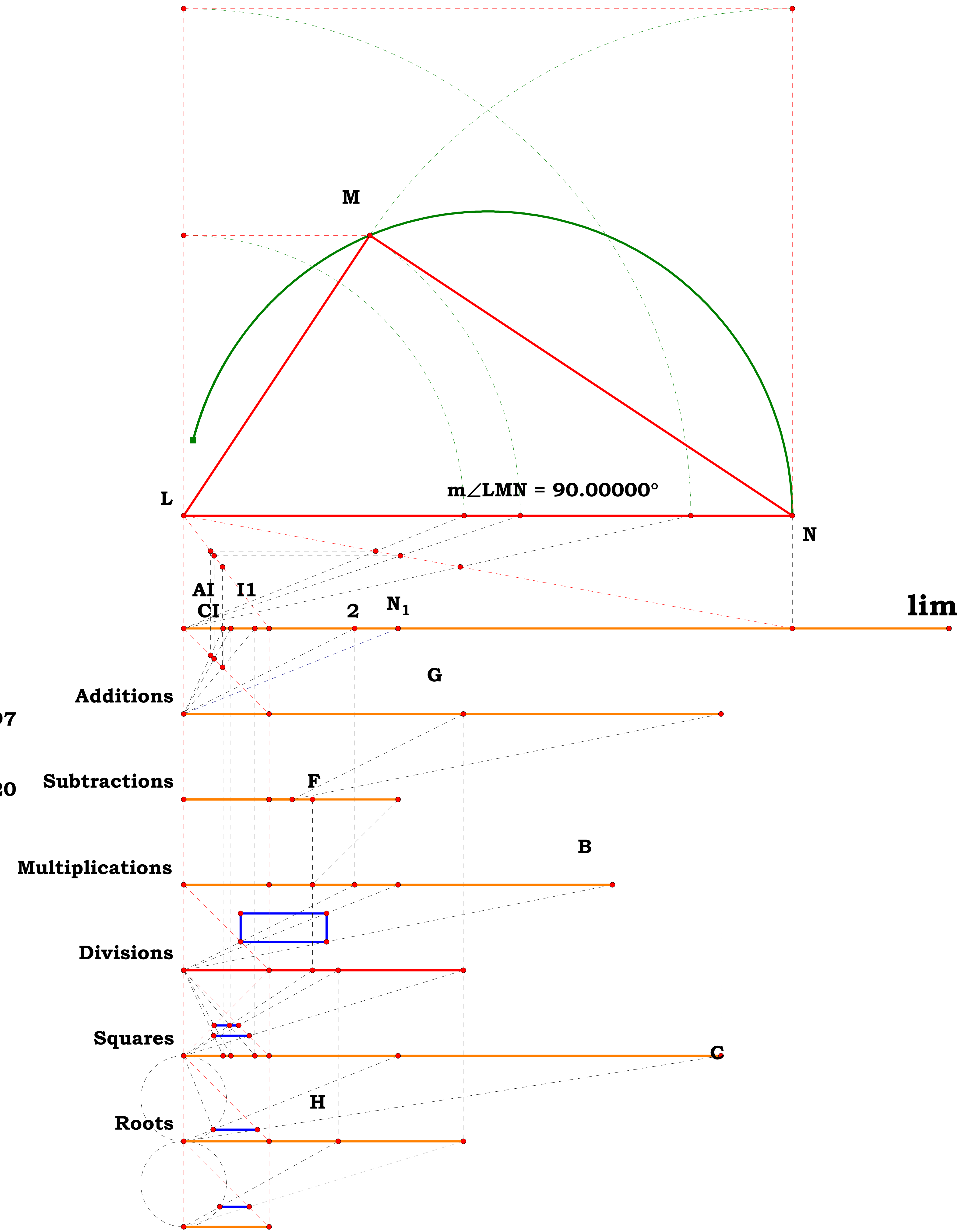
$$\frac{1}{\sqrt{((N_1^2-2\cdot N_1)+2)}} = 0.55297$$

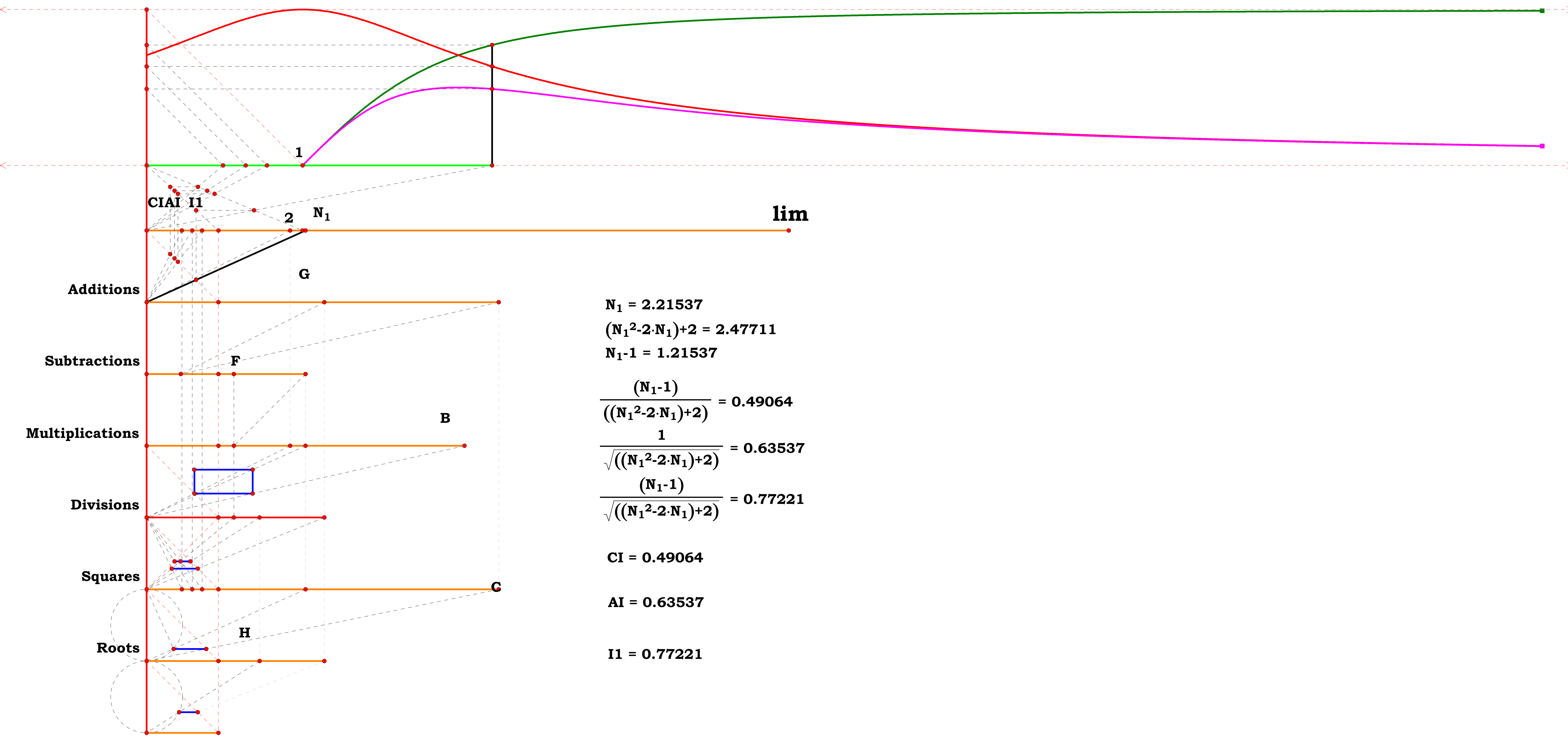
$$\frac{(N_1-1)}{\sqrt{((N_1^2-2\cdot N_1)+2)}} = 0.83320$$

CI = 0.46074

AI = 0.55297

I1 = 0.83320





$N_1 = 2.21537$

$(N_1^2 - 2 \cdot N_1) + 2 = 2.47711$

$N_1 - 1 = 1.21537$

$$\frac{(N_1 - 1)}{((N_1^2 - 2 \cdot N_1) + 2)} = 0.49064$$

$$\frac{1}{\sqrt{((N_1^2 - 2 \cdot N_1) + 2)}} = 0.63537$$

$$\frac{(N_1 - 1)}{\sqrt{((N_1^2 - 2 \cdot N_1) + 2)}} = 0.77221$$

$CI = 0.49064$

$AI = 0.63537$

$I1 = 0.77221$

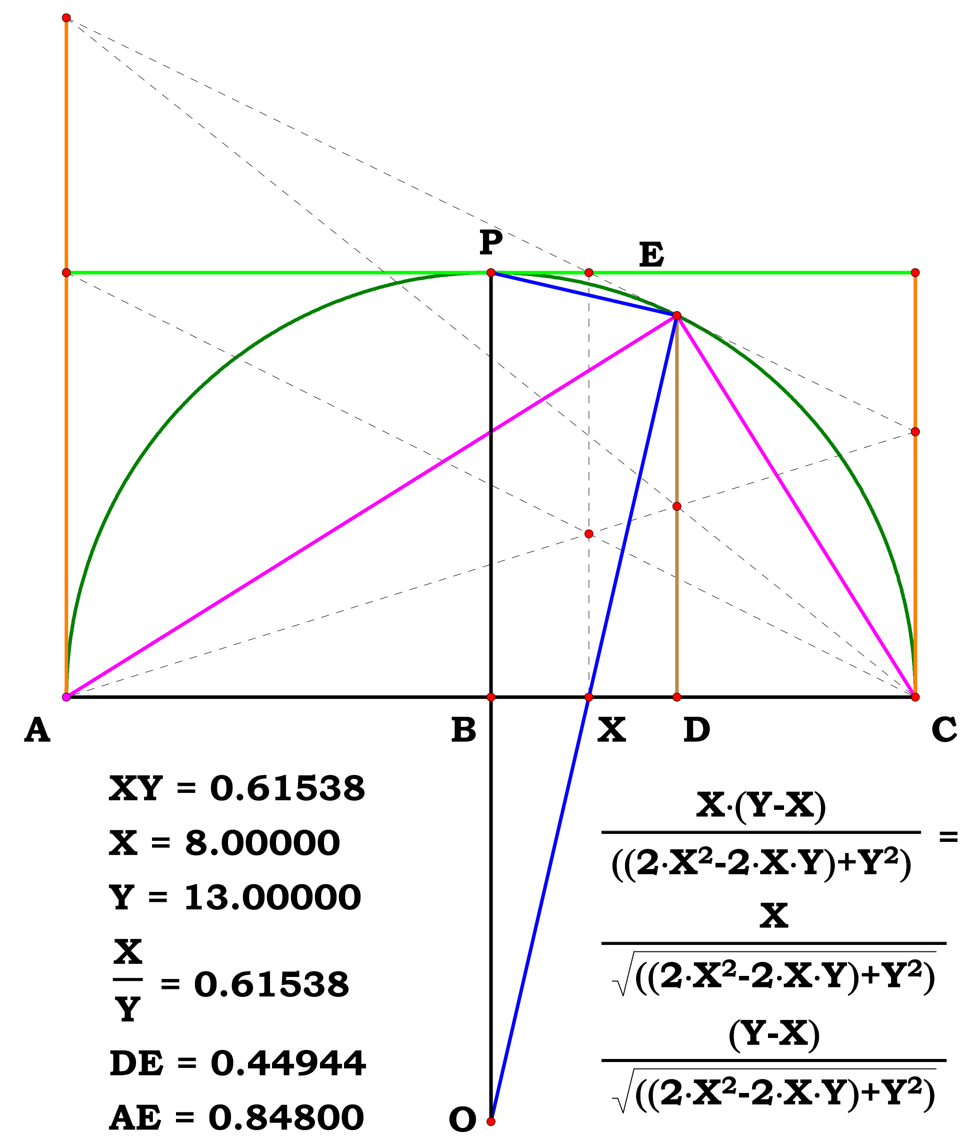
Unit = 1.00000

Y -> 1
Y -> 2
Y -> 3
Y -> 4
Y -> 5
Y -> 6
Y -> 7
Y -> 8
Y -> 9
Y -> 10
Y -> 11
Y -> 12
Y -> 13
Y -> 14
Y -> 15
Y -> 16
Y -> 17
Y -> 18
Y -> 19
Y -> 20
X -> 0
X -> 1
X -> 2
X -> 3
X -> 4
X -> 5
X -> 6
X -> 7
X -> 8
X -> 9
X -> 10
X -> 11
X -> 12
X -> 13
X -> 14
X -> 15
X -> 16
X -> 17
X -> 18

Show Circle

C

X -> 19
X -> 20
Show Points



$XY = 0.61538$

$X = 8.00000$

$Y = 13.00000$

$\frac{X}{Y} = 0.61538$

$DE = 0.44944$

$AE = 0.84800$

$CE = 0.53000$

$$\frac{X\cdot(Y-X)}{((2\cdot X^2-2\cdot X\cdot Y)+Y^2)} = 0.44944$$

$$\frac{X}{\sqrt{((2\cdot X^2-2\cdot X\cdot Y)+Y^2)}} = 0.84800$$

$$\frac{(Y-X)}{\sqrt{((2\cdot X^2-2\cdot X\cdot Y)+Y^2)}} = 0.53000$$

$(2\cdot X^2-2\cdot X\cdot Y)+Y^2 = 89.00000$

$Y-X = 5.00000$

AC = 8.89517 cm

AE = 7.54309 cm

DE = 3.99783 cm

CE = 4.71443 cm

$$\frac{X\cdot(Y-X)}{((2\cdot X^2-2\cdot X\cdot Y)+Y^2)}-DE = 0.00000$$

$$\frac{X}{\sqrt{((2\cdot X^2-2\cdot X\cdot Y)+Y^2)}}-AE = 0.00000$$

$$\frac{(Y-X)}{\sqrt{((2\cdot X^2-2\cdot X\cdot Y)+Y^2)}}-CE = 0.00000$$

Unit = 1.00000

Y -> 1
Y -> 2
Y -> 3
Y -> 4
Y -> 5
Y -> 6
Y -> 7
Y -> 8
Y -> 9
Y -> 10
Y -> 11
Y -> 12
Y -> 13
Y -> 14
Y -> 15
Y -> 16
Y -> 17
Y -> 18
Y -> 19
Y -> 20
X -> 0
X -> 1
X -> 2
X -> 3
X -> 4
X -> 5
X -> 6
X -> 7
X -> 8
X -> 9
X -> 10
X -> 11
X -> 12
X -> 13
X -> 14
X -> 15
X -> 16
X -> 17
X -> 18

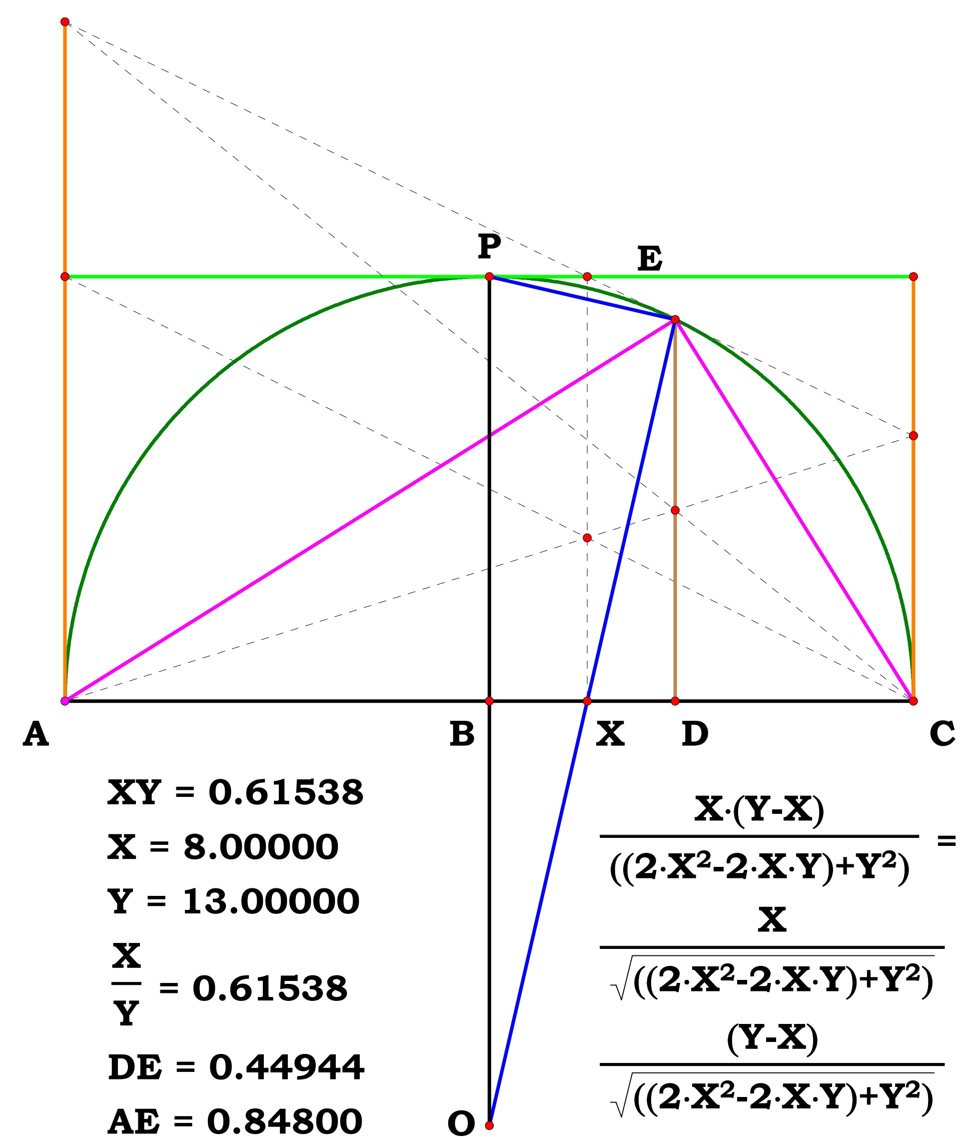
Show Circle

C

X -> 19
X -> 20
Show Points

AX = 5.47395 cm

AC = 8.89517 cm



$(2\cdot X^2-2\cdot X\cdot Y)+Y^2 = 89.00000$

$Y-X = 5.00000$

AE = 7.54309 cm

DE = 3.99783 cm

CE = 4.71443 cm

$(2\cdot AX^2-2\cdot AX\cdot AC)+AC^2 = 41.66885\ cm^2$

AC-AX = 3.42122 cm

XY = 0.61538

X = 8.00000

Y = 13.00000

$\frac{X}{Y} = 0.61538$

DE = 0.44944

AE = 0.84800

CE = 0.53000

$$\frac{X\cdot(Y-X)}{((2\cdot X^2-2\cdot X\cdot Y)+Y^2)} = 0.44944$$

$$\frac{X}{\sqrt{((2\cdot X^2-2\cdot X\cdot Y)+Y^2)}} = 0.84800$$

$$\frac{(Y-X)}{\sqrt{((2\cdot X^2-2\cdot X\cdot Y)+Y^2)}} = 0.53000$$

$$\frac{AX\cdot(AC-AX)}{((2\cdot AX^2-2\cdot AX\cdot AC)+AC^2)} = 0.44944$$

$$\frac{AX}{\sqrt{((2\cdot AX^2-2\cdot AX\cdot AC)+AC^2)}} = 0.84800$$

$$\frac{(AC-AX)}{\sqrt{((2\cdot AX^2-2\cdot AX\cdot AC)+AC^2)}} = 0.53000$$

$$\frac{X\cdot(Y-X)}{((2\cdot X^2-2\cdot X\cdot Y)+Y^2)}-DE = 0.00000$$

$$\frac{X}{\sqrt{((2\cdot X^2-2\cdot X\cdot Y)+Y^2)}}-AE = 0.00000$$

$$\frac{(Y-X)}{\sqrt{((2\cdot X^2-2\cdot X\cdot Y)+Y^2)}}-CE = 0.00000$$

$$\frac{AX\cdot(AC-AX)}{((2\cdot AX^2-2\cdot AX\cdot AC)+AC^2)}-DE = 0.00000$$

$$\frac{AX}{\sqrt{((2\cdot AX^2-2\cdot AX\cdot AC)+AC^2)}}-AE = 0.00000$$

$$\frac{(AC-AX)}{\sqrt{((2\cdot AX^2-2\cdot AX\cdot AC)+AC^2)}}-CE = 0.00000$$

Y -> 1
Y -> 2
Y -> 3
Y -> 4
Y -> 5
Y -> 6
Y -> 7
Y -> 8
Y -> 9
Y -> 10
Y -> 11
Y -> 12
Y -> 13
Y -> 14
Y -> 15
Y -> 16
Y -> 17
Y -> 18
Y -> 19
Y -> 20
X -> 0
X -> 1
X -> 2
X -> 3
X -> 4
X -> 5
X -> 6
X -> 7
X -> 8
X -> 9
X -> 10
X -> 11
X -> 12
X -> 13
X -> 14
X -> 15
X -> 16
X -> 17
X -> 18
X -> 19
X -> 20

Hide Path Objects
Inputs
Points
Show Points
Hide Objects

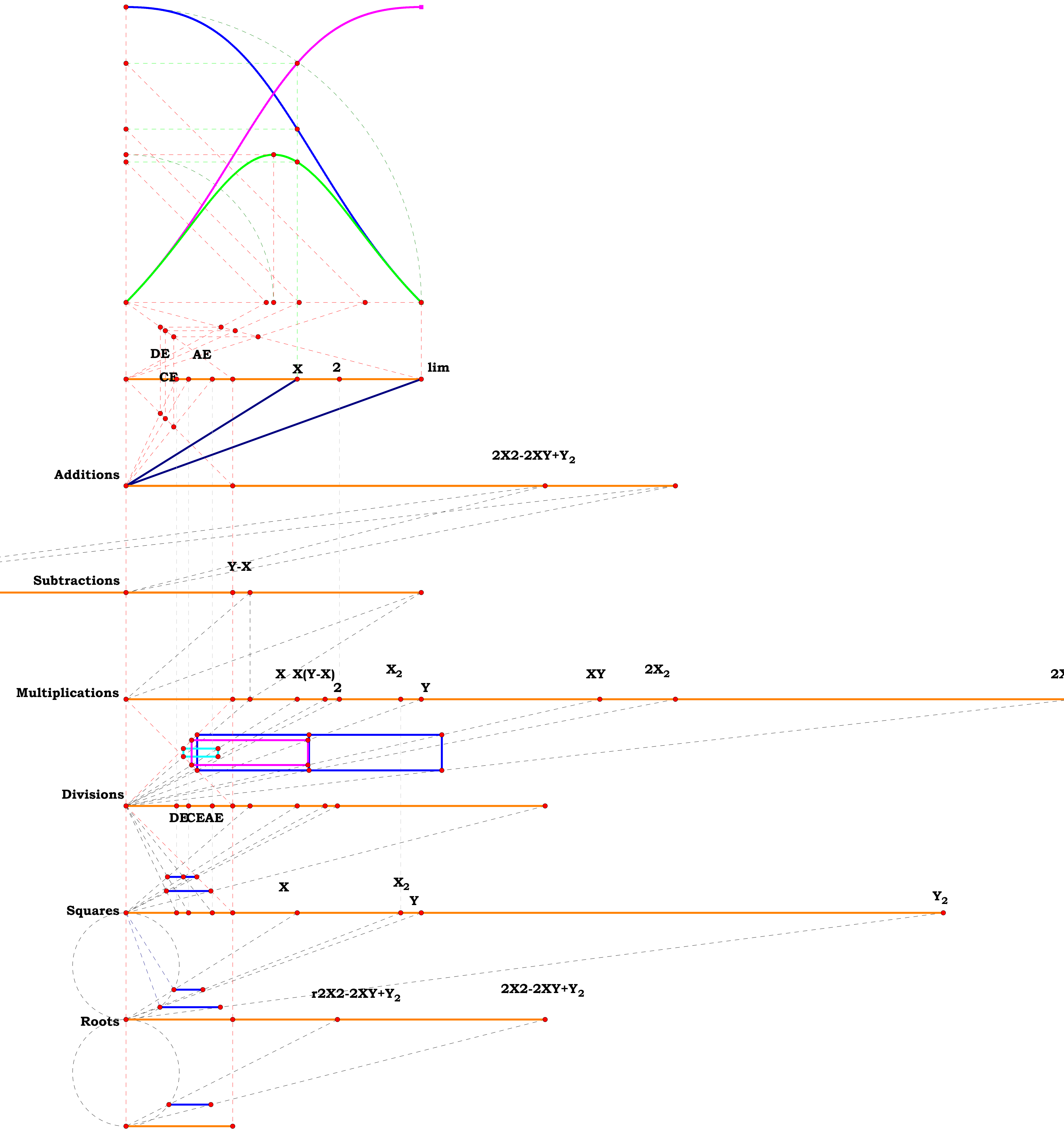
Hide Segments

X = 11.59515
Y = 20.00000
XY = 0.57976
DE = 0.47519
CE = 0.58689
AE = 0.80966
Y-X = 8.40485
$(2 \cdot X^2 - 2 \cdot X \cdot Y) + Y^2 = 205.08902$

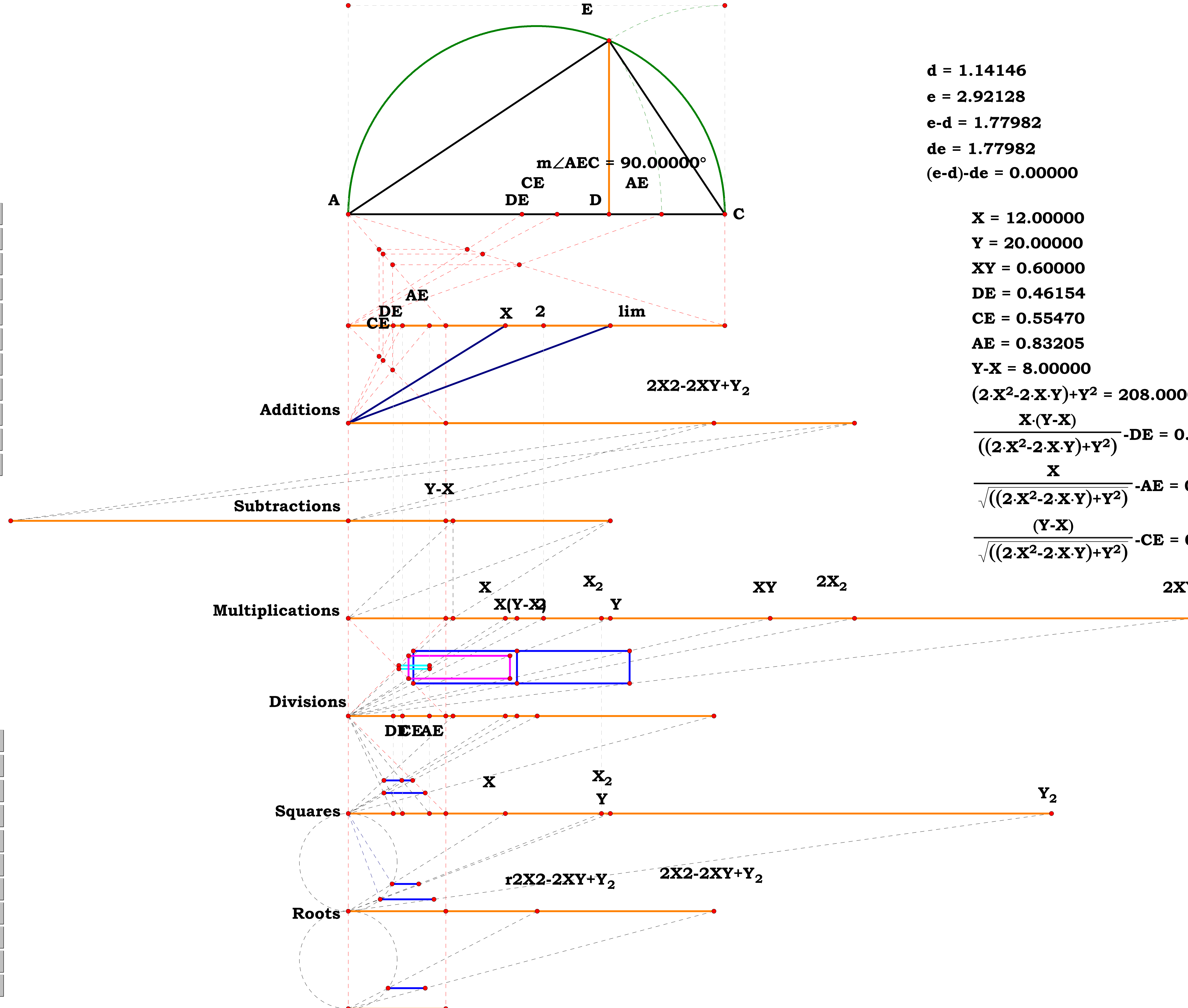
$$\frac{X \cdot (Y-X)}{((2 \cdot X^2 - 2 \cdot X \cdot Y) + Y^2)} - DE = 0.00000$$

$$\frac{X}{\sqrt{((2 \cdot X^2 - 2 \cdot X \cdot Y) + Y^2)}} - AE = 0.00000$$

$$\frac{(Y-X)}{\sqrt{((2 \cdot X^2 - 2 \cdot X \cdot Y) + Y^2)}} - CE = 0.00000$$



Y -> 1
Y -> 2
Y -> 3
Y -> 4
Y -> 5
Y -> 6
Y -> 7
Y -> 8
Y -> 9
Y -> 10
Y -> 11
Y -> 12
Y -> 13
Y -> 14
Y -> 15
Y -> 16
Y -> 17
Y -> 18
Y -> 19
Y -> 20
X -> 0
X -> 1
X -> 2
X -> 3
X -> 4
X -> 5
X -> 6
X -> 7
X -> 8
X -> 9
X -> 10
X -> 11
X -> 12
X -> 13
X -> 14
X -> 15
X -> 16
X -> 17
X -> 18
X -> 19
X -> 20



d = 1.14146
e = 2.92128
e-d = 1.77982
de = 1.77982
(e-d)-de = 0.00000

X = 12.00000
Y = 20.00000
XY = 0.60000
DE = 0.46154
CE = 0.55470
AE = 0.83205
Y-X = 8.00000

$(2\cdot X^2-2\cdot X\cdot Y)+Y^2 = 208.00000$

$$\frac{X\cdot(Y-X)}{((2\cdot X^2-2\cdot X\cdot Y)+Y^2)}-DE = 0.00000$$

$$\frac{X}{\sqrt{((2\cdot X^2-2\cdot X\cdot Y)+Y^2)}}-AE = 0.00000$$

$$\frac{(Y-X)}{\sqrt{((2\cdot X^2-2\cdot X\cdot Y)+Y^2)}}-CE = 0.00000$$

Y -> 1
Y -> 2
Y -> 3
Y -> 4
Y -> 5
Y -> 6
Y -> 7
Y -> 8
Y -> 9
Y -> 10
Y -> 11
Y -> 12
Y -> 13
Y -> 14
Y -> 15
Y -> 16
Y -> 17
Y -> 18
Y -> 19
Y -> 20
X -> 0
X -> 1
X -> 2
X -> 3
X -> 4
X -> 5
X -> 6
X -> 7
X -> 8
X -> 9
X -> 10
X -> 11
X -> 12
X -> 13
X -> 14
X -> 15
X -> 16
X -> 17
X -> 18
X -> 19
X -> 20

Hide Path Objects
Inputs
Points
Show Points
Hide Objects

Hide Segments

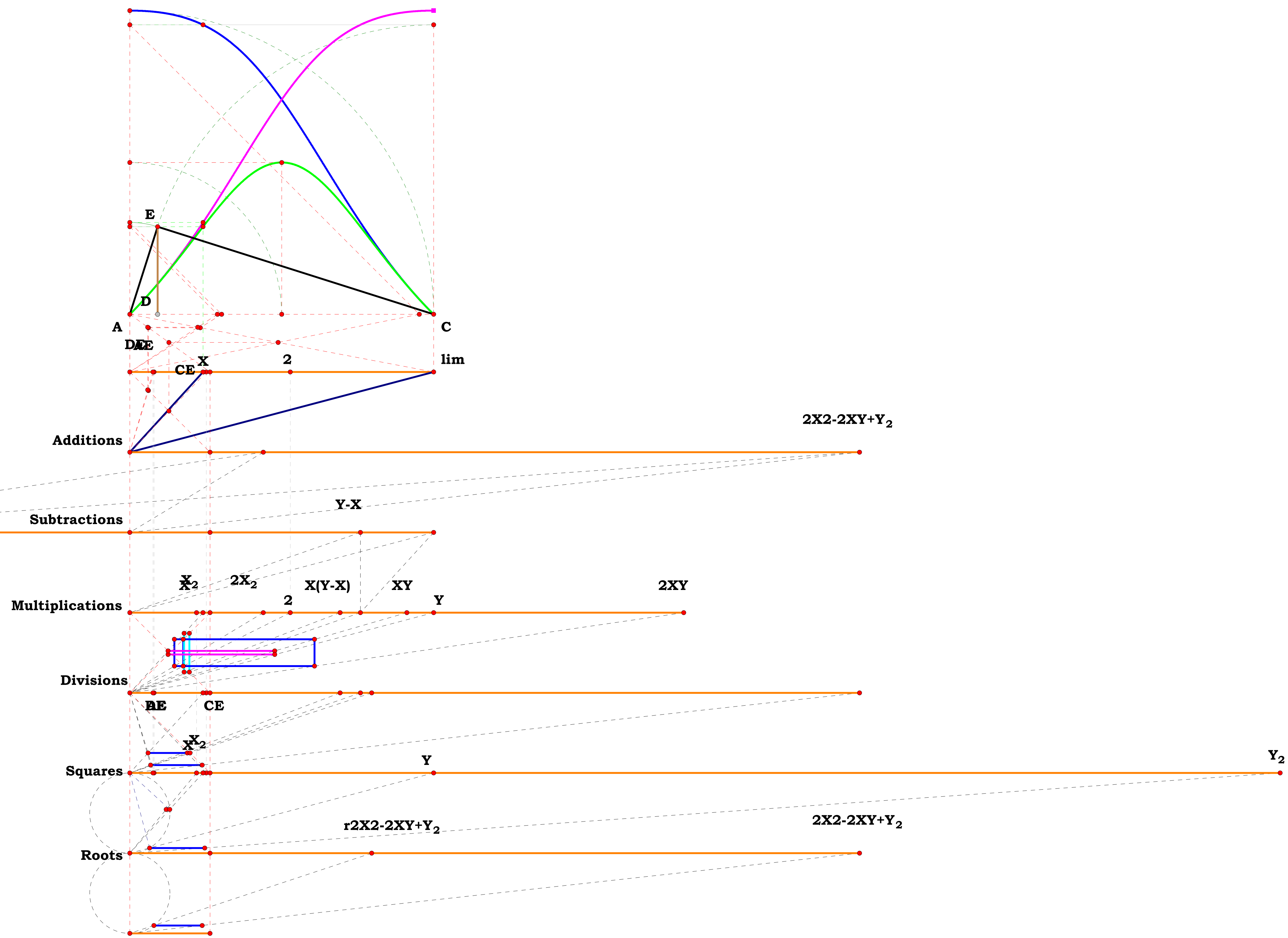
X = 4.81580
Y = 20.00000
XY = 0.24079
DE = 0.28817
CE = 0.95321
AE = 0.30232
Y-X = 15.18420
$(2\cdot X^2-2\cdot X\cdot Y)+Y^2 = 253.75180$

$\frac{X\cdot(Y-X)}{((2\cdot X^2-2\cdot X\cdot Y)+Y^2)}-DE = 0.00000$

$\frac{X}{\sqrt{((2\cdot X^2-2\cdot X\cdot Y)+Y^2)}}-AE = 0.00000$

$\frac{(Y-X)}{\sqrt{((2\cdot X^2-2\cdot X\cdot Y)+Y^2)}}-CE = 0.00000$

m∠AEC = 90.00000°



05 Data Piping

John 312

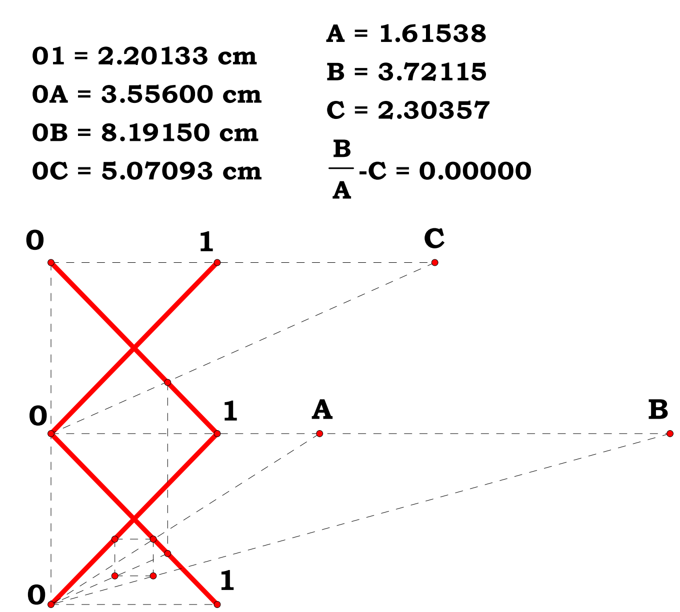
Data Piping

Friday, November 6, 2020

One of the results of my project to provide the constructions for the many propositions in the *Elements* that do not have them, the lines provided which may nor may not be proportional to each other in the book are supposed results, but not constructions, was to lead me to advance my understanding of figure stacking for *Basic Analog Mathematics*. Also one can show the steps in a glyph by piping to simpler glyphs. Suffice it to say, one should view each glyph as having inputs and outputs which may be distributed using data piping, or wiring.

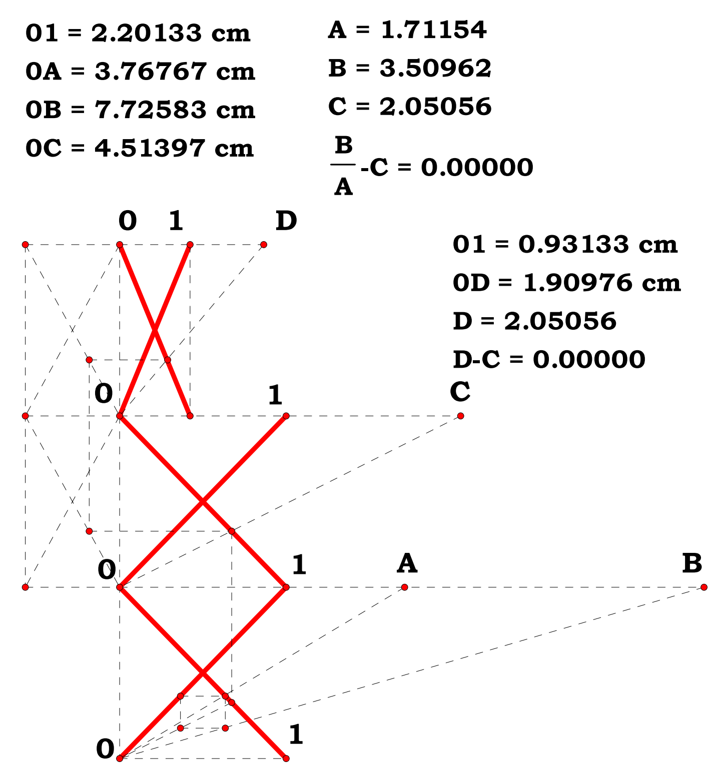
One of the early recognized benefits of a *Basic Analog Mathematics* figure is stackability so that one can do computations within another figure on another line. The stacking maintains a one-to-one ratio with the given unit over all the figures.

Basic Stacking

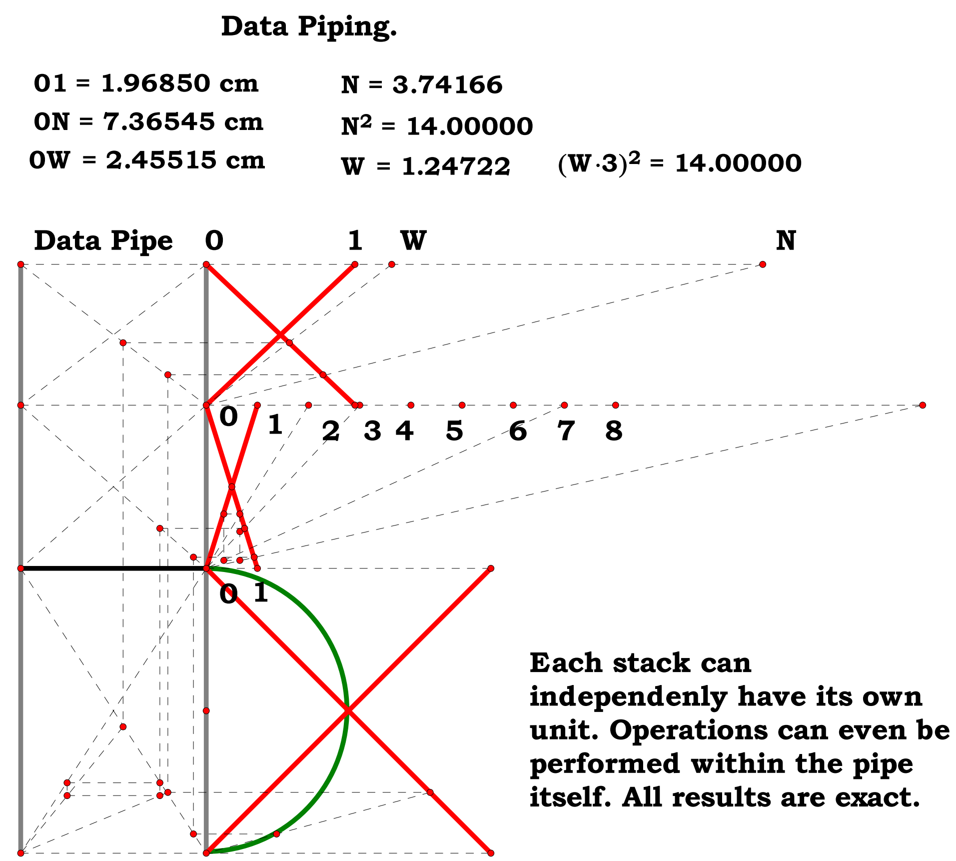


However, to take stackability to a new level, one must recognize that one can pipe results to a stacked figure and also, simultaneous choose an independent unit for that line of computation while have no effect on the results. Thus if one desires to project the results for the construction of a figure, they can do so quite independently of units chosen to do the math in *Basic Analog Mathematics*.

Proportional Stacking



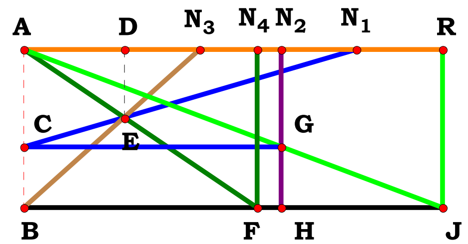
One can see that this aids in building geometric figures which are in fact, very complex computational computers. Thus complex computational analog computers can constructed, which, if I am not mistaken, will eventually lead to the realization of holographic analog computing at speeds unimagined at this time.



All of legitimate mathematics are derived from the physical world—each concept geometrically demonstrable. Thus, all legitimate mathematics are demonstrable in the analogic of geometry—through *Basic Analog Mathematics*; or more properly, any logical grammar, or any analog grammar, can be reduced to a universal analog grammar called geometry. The information to construct the figure, that of proportion between parallel lines, is actually presented in Euclid's Elements Book 1. So, all that is needed to understand mathematics is presented by the end of Book 1, and the results of the implication of proportion is explored throughout the rest of the work.

06 Logical Operators

John 312



$N_1 = 2.10101$
$N_2 = 1.62626$
$N_3 = 1.11111$
$N_4 = 1.47475$
$R = 2.64325$

Unit. $AB := 1$ **Given.** $N_1 := 2.10101$ $N_2 := 1.62626$ $N_3 := 1.11111$ $N_4 := 1.47475$

$N_u := 3$ $A := \dfrac{N_u}{N_1}$ $B := \dfrac{N_u}{N_2}$ $C := \dfrac{N_u}{N_3}$ $D := \dfrac{N_u}{N_4}$

Absolute Logical Operators 1CST7R8

Descriptions.

$$\frac{N_u \cdot (C - A + D)}{B \cdot D} = 2.643245 \qquad Num := \frac{N_u \cdot (C - A + D)}{\sqrt{\left[N_u \cdot (C - A + D)\right]^2}} \qquad Den := \frac{B \cdot D}{\sqrt{(B \cdot D)^2}} \qquad L := \frac{Num}{Den}$$

Definitions.

$Num = 1$ $Den = 1$ $L = 1$

$$\frac{Num}{Den} = 1$$

$$L - \frac{N_u \cdot \sqrt{B^2 \cdot D^2} \cdot (C - A + D)}{B \cdot D \cdot \sqrt{N_u^{\,2} \cdot (C - A + D)^2}} = 0$$

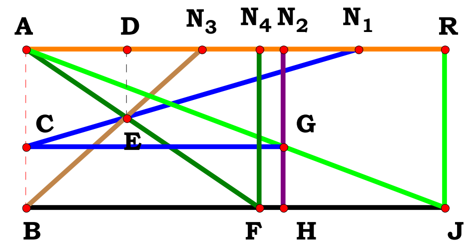
Given.

$A := 2.10101$

$B := 1.62626$

$C := 1.11111$

$D := 1.47475$



$N_1 = 2.10101$

$N_2 = 1.62626$

$N_3 = 1.11111$

$N_4 = 1.47475$

$R = 2.64325$

Relative Logical Operators 1CST7R8

Descriptions.

$$\frac{A \cdot B \cdot (C + D) - B \cdot C \cdot D}{A \cdot C} = 2.643245 \qquad Num := \frac{A \cdot B \cdot (C + D) - B \cdot C \cdot D}{\sqrt{[A \cdot B \cdot (C + D) - B \cdot C \cdot D]^2}} \qquad Den := \frac{A \cdot C}{\sqrt{(A \cdot C)^2}} \qquad L := \frac{Num}{Den}$$

Definitions.

$Num = 1 \qquad Den = 1 \qquad L = 1$

$$L - \frac{\sqrt{A^2 \cdot C^2} \cdot [A \cdot B \cdot (C + D) - B \cdot C \cdot D]}{A \cdot C \cdot \sqrt{[A \cdot B \cdot (C + D) - B \cdot C \cdot D]^2}} = 0$$

For 4 variables there are 16 subsets.

0, 0, 0, 0: 1

1, 0, 0, 0: $\frac{\sqrt{A^2} \cdot (2 \cdot A - 1)}{A \cdot \sqrt{(2 \cdot A - 1)^2}} = 1$

0, 2, 0, 0: $\frac{B}{\sqrt{B^2}} = 1$

1, 2, 0, 0: $-\frac{(B - 2 \cdot A \cdot B) \cdot \sqrt{A^2}}{A \cdot \sqrt{(B - 2 \cdot A \cdot B)^2}} = 1$

0, 0, 3, 0: $\frac{\sqrt{C^2}}{C} = 1$

1, 0, 3, 0: $-\frac{\sqrt{A^2 \cdot C^2} \cdot [C - A \cdot (C + 1)]}{A \cdot C \cdot \sqrt{[C - A \cdot (C + 1)]^2}} = 1$

0, 2, 3, 0: $-\frac{\sqrt{C^2} \cdot [B \cdot C - B \cdot (C + 1)]}{C \cdot \sqrt{[B \cdot C - B \cdot (C + 1)]^2}} = 1$

1, 2, 3, 0: $-\frac{\sqrt{A^2 \cdot C^2} \cdot [B \cdot C - A \cdot B \cdot (C + 1)]}{A \cdot C \cdot \sqrt{[B \cdot C - A \cdot B \cdot (C + 1)]^2}} = 1$

0, 0, 0, 4: 1

1, 0, 0, 4: $-\frac{\sqrt{A^2} \cdot [D - A \cdot (D + 1)]}{A \cdot \sqrt{[D - A \cdot (D + 1)]^2}} = 1$

0, 2, 0, 4: $-\frac{B \cdot D - B \cdot (D + 1)}{\sqrt{[B \cdot D - B \cdot (D + 1)]^2}} = 1$

1, 2, 0, 4: $-\frac{\sqrt{A^2} \cdot [B \cdot D - A \cdot B \cdot (D + 1)]}{A \cdot \sqrt{[B \cdot D - A \cdot B \cdot (D + 1)]^2}} = 1$

0, 0, 3, 4: $\frac{\sqrt{C^2} \cdot (C + D - C \cdot D)}{C \cdot \sqrt{(C + D - C \cdot D)^2}} = 1$

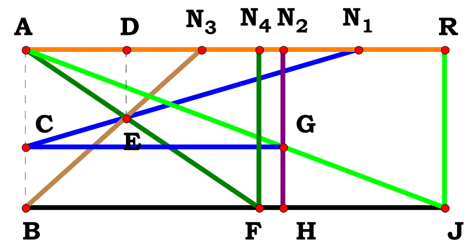
1, 0, 3, 4: $\frac{\sqrt{A^2 \cdot C^2} \cdot [A \cdot (C + D) - C \cdot D]}{A \cdot C \cdot \sqrt{[A \cdot (C + D) - C \cdot D]^2}} = 1$

0, 2, 3, 4: $\frac{\sqrt{C^2} \cdot [B \cdot (C + D) - B \cdot C \cdot D]}{C \cdot \sqrt{[B \cdot (C + D) - B \cdot C \cdot D]^2}} = 1$

1, 2, 3, 4: $\frac{\sqrt{A^2 \cdot C^2} \cdot [A \cdot B \cdot (C + D) - B \cdot C \cdot D]}{A \cdot C \cdot \sqrt{[A \cdot B \cdot (C + D) - B \cdot C \cdot D]^2}} = 1$

07 Transforms

John 312



$N_1 = 2.10101$
$N_2 = 1.62626$
$N_3 = 1.11111$
$N_4 = 1.47475$
$R = 2.64325$

Unit. $AB := 1$ **Given.** $N_1 := 2.10101$ $N_2 := 1.62626$ $N_3 := 1.11111$ $N_4 := 1.47475$

$N_u := 3$ $A := \frac{N_u}{N_1}$ $B := \frac{N_u}{N_2}$ $C := \frac{N_u}{N_3}$ $D := \frac{N_u}{N_4}$

Absolute Transforms 1CST7R8

Descriptions.

$$\frac{N_u \cdot (C - A + D)}{B \cdot D} = 2.643245$$

For 4 variables there are16 subsets.

0, 0, 0, 0:	1	0, 0, 0, 4:	1
1, 0, 0, 0:	$-\frac{A - 2 \cdot N_u}{N_u}$	1, 0, 0, 4:	$\frac{D - A + N_u}{D}$
0, 2, 0, 0:	$\frac{N_u}{B}$	0, 2, 0, 4:	$\frac{N_u}{B}$
1, 2, 0, 0:	$-\frac{A - 2 \cdot N_u}{B}$	1, 2, 0, 4:	$\frac{N_u \cdot \left(D - A + N_u\right)}{B \cdot D}$
0, 0, 3, 0:	$\frac{C}{N_u}$	0, 0, 3, 4:	$\frac{C + D - N_u}{D}$
1, 0, 3, 0:	$\frac{C - A + N_u}{N_u}$	1, 0, 3, 4:	$\frac{C - A + D}{D}$
0, 2, 3, 0:	$\frac{C}{B}$	0, 2, 3, 4:	$\frac{N_u \cdot \left(C + D - N_u\right)}{B \cdot D}$
1, 2, 3, 0:	$\frac{C - A + N_u}{B}$	1, 2, 3, 4:	$\frac{N_u \cdot (C - A + D)}{B \cdot D}$

Unit.

$AB := 1$

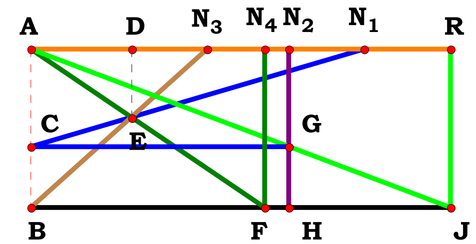
Given.

$N_1 := 2.10101$

$N_2 := 1.62626$

$N_3 := 1.11111$

$N_4 := 1.47475$



$N_1 = 2.10101$
$N_2 = 1.62626$
$N_3 = 1.11111$
$N_4 = 1.47475$
$R = 2.64325$

Relative Transforms 1CST7R8

Descriptions.

$$\frac{N_1 \cdot N_2 \cdot N_3 + N_1 \cdot N_2 \cdot N_4 - N_2 \cdot N_3 \cdot N_4}{N_1 \cdot N_3} = 2.643245$$

For 4 variables there are 16 subsets.

0, 0, 0, 0: 1

1, 0, 0, 0: $\frac{2 \cdot N_1 - 1}{N_1}$

0, 2, 0, 0: N_2

1, 2, 0, 0: $\frac{2 \cdot N_1 \cdot N_2 - N_2}{N_1}$

0, 0, 3, 0: $\frac{1}{N_3}$

1, 0, 3, 0: $\frac{N_1 - N_3 + N_1 \cdot N_3}{N_1 \cdot N_3}$

0, 2, 3, 0: $\frac{N_2}{N_3}$

1, 2, 3, 0: $\frac{N_1 \cdot N_2 - N_2 \cdot N_3 + N_1 \cdot N_2 \cdot N_3}{N_1 \cdot N_3}$

0, 0, 0, 4: 1

1, 0, 0, 4: $\frac{N_1 - N_4 + N_1 \cdot N_4}{N_1}$

0, 2, 0, 4: N_2

1, 2, 0, 4: $\frac{N_1 \cdot N_2 - N_2 \cdot N_4 + N_1 \cdot N_2 \cdot N_4}{N_1}$

0, 0, 3, 4: $\frac{N_3 + N_4 - N_3 \cdot N_4}{N_3}$

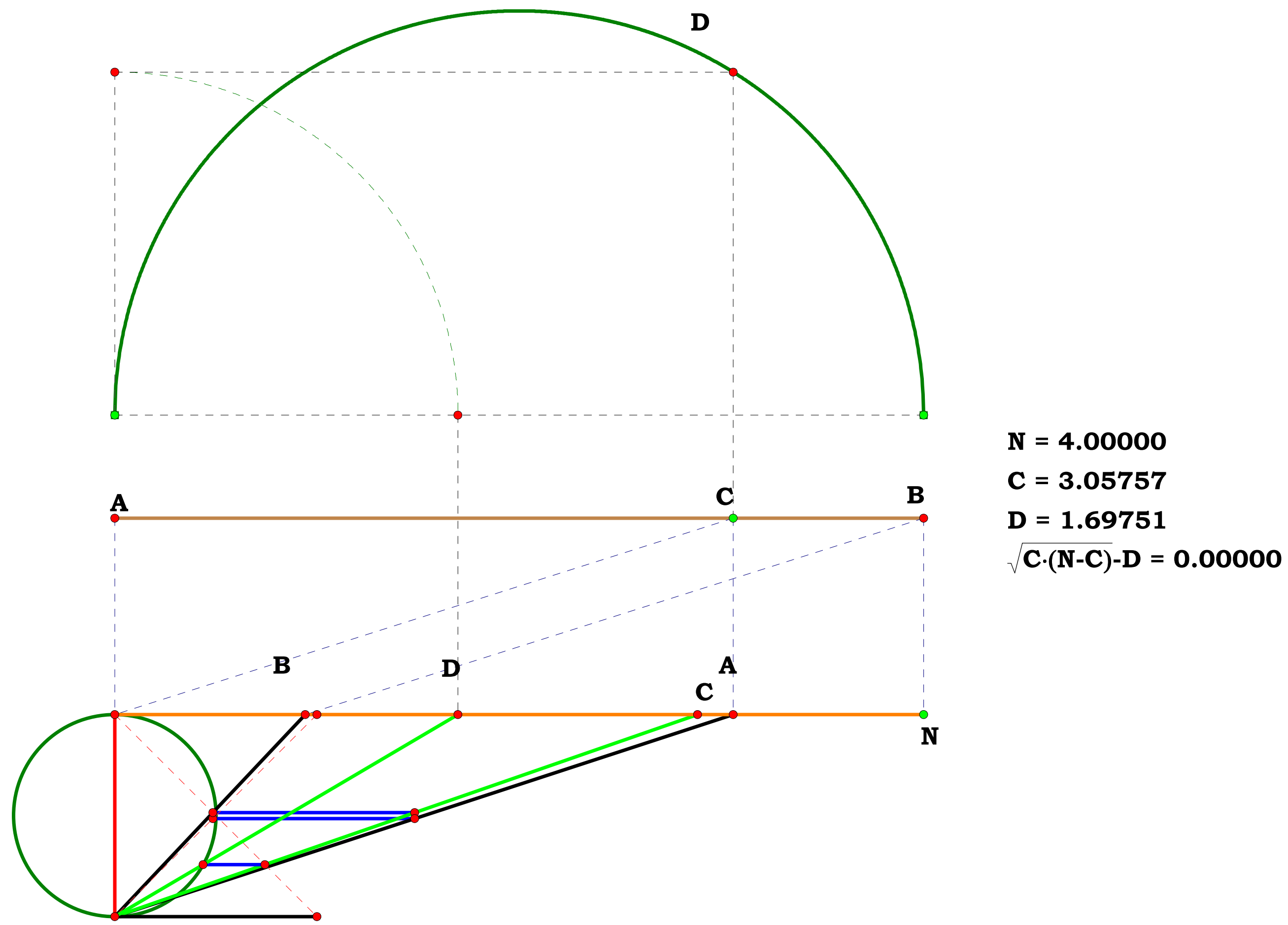
1, 0, 3, 4: $\frac{N_1 \cdot N_3 + N_1 \cdot N_4 - N_3 \cdot N_4}{N_1 \cdot N_3}$

0, 2, 3, 4: $\frac{N_2 \cdot N_3 + N_2 \cdot N_4 - N_2 \cdot N_3 \cdot N_4}{N_3}$

1, 2, 3, 4: $\frac{N_1 \cdot N_2 \cdot N_3 + N_1 \cdot N_2 \cdot N_4 - N_2 \cdot N_3 \cdot N_4}{N_1 \cdot N_3}$

08 Odds and Ends

John 312



The equation for a circle is the same as in Euclidean Geometry, for any diameter and any point on it, the circumference from that point is square root of the product of the two segments of the diameter.

One of the ways of importing the circle into geometry is by starting with a unit, and then applying math functions of multiplication and division to it. By taking any ratio of a unit, multiplying those segments and then taking the square root of them, one will produce a circle.

Construction 1.

Intrduction to the circle and the ellipse.

A circle is that boundary in a plane, from the locus of a segment, as a proportional to half the segment as determined by the root of both parts of that segment on the perpendicular to that point.

Or, one can say that a circle is that boundary which is the root of the product of a segment's complementary segments.

However, no matter which way one views the circle, it turns out to be a product of a segment and it circumscribes that segment, furthermore the mathematics is a given as soon as one has been given a segment. Therefore, the compass itself only recognizes a given when the segment is a given. This is only part of what complete induction means.

What this should tell one, is that the stipulation that geometry is the product of only the straight edge and compass is not true. Complete induction by the unit segment is inclusive of any geometric tool which maintains the unit.

Complete induction, itself, determines what a geometric tool is; otherwise, one is both affirming and denying complete induction for a language. Complete induction automatically eliminates any claim of alternate geometries.

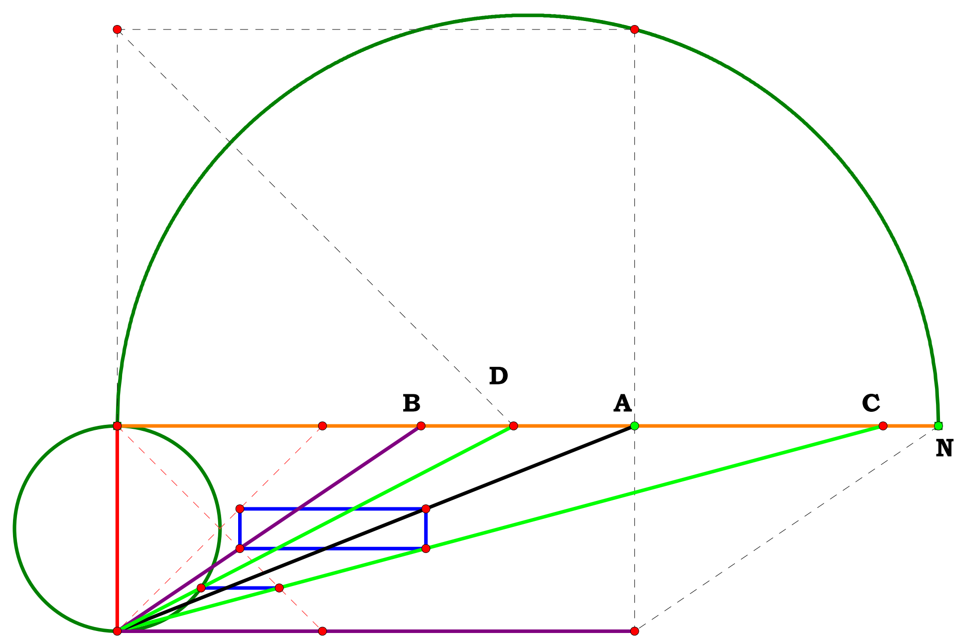
The fact of complete induction determines a geometric tool follows from the definition of any thing.

What may be predicated of any thing is wholly determined by the definition of that thing. By claiming geometry only uses or can use, straightedge and compass, only denotes a lack of language comprehension.

Construction 2.

Intrduction to the circle and the ellipse.

A circle is that boundary in a plane from the locus of a segment as a proprotional to half the segment as determined by the root of both parts of that segment on the perpendicular to that point.

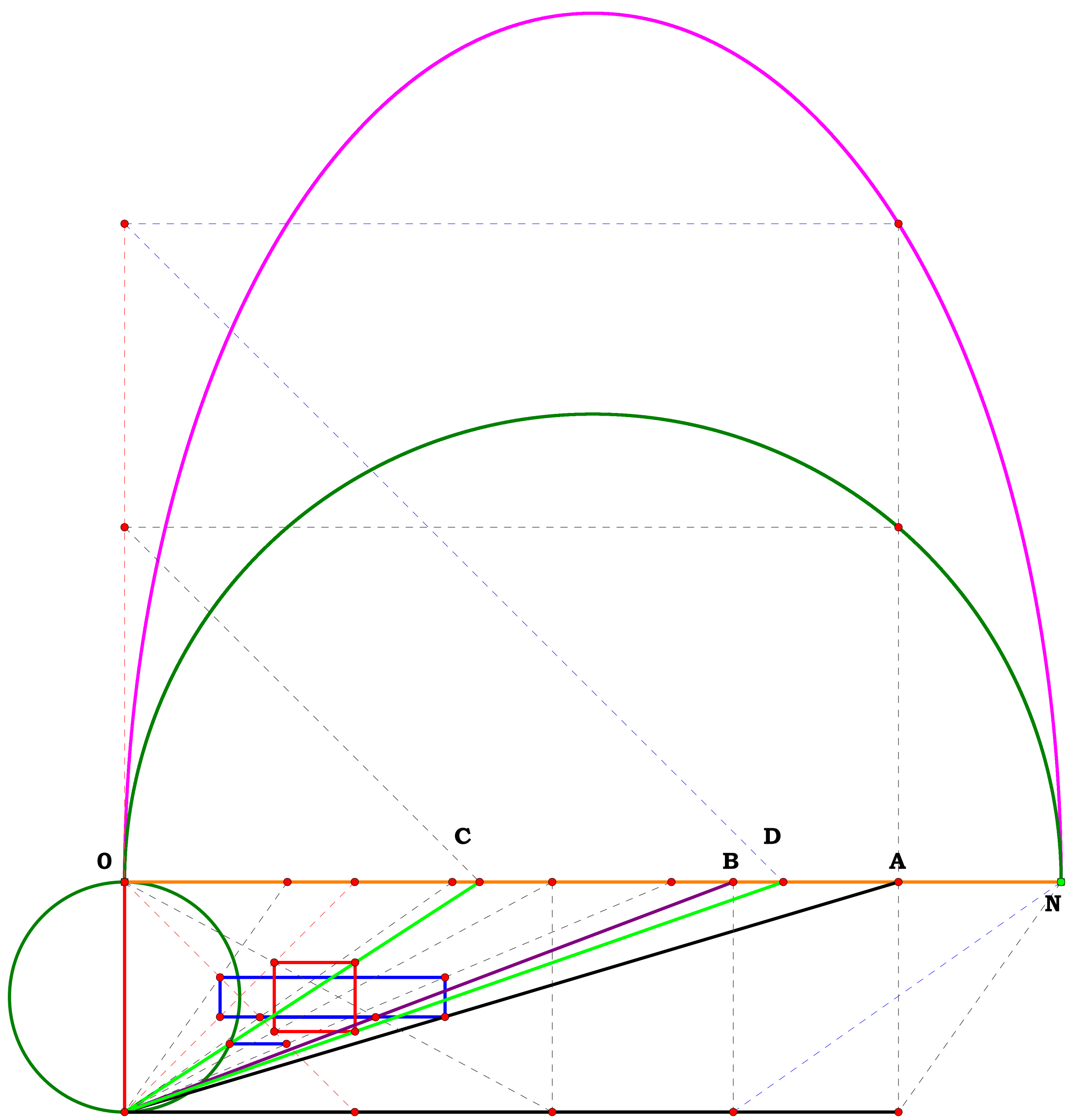


N = 4.00000
A = 2.51980
B = 1.48020
C = 3.72981
D = 1.93127
(A+B)-N = 0.00000
A·B-C = 0.00000
D-$\sqrt{C}$ = 0.00000

$\sqrt{A\cdot(N-A)}$-D = 0.00000

The equation for a circle is the same as in Euclidean Geometry, for any diameter and any point on it, the circumference from that point is square root of the product of the two segments of the diameter.

Therefore, an alternate means of starting a geometric treatise, is with a unit, and then applying the basic operations to that unit for the sake of construction and building the language.



Ellipse E1.

One will note that in this construction, every ellipse is possible, however, there is no major and minor axis; there is just the axis.

An elipse is that boundary in a plane from the locus of a segment as a proportional to the proprotional to half the segment as determined by the root of both parts of that segment on the perpendicular to that point.

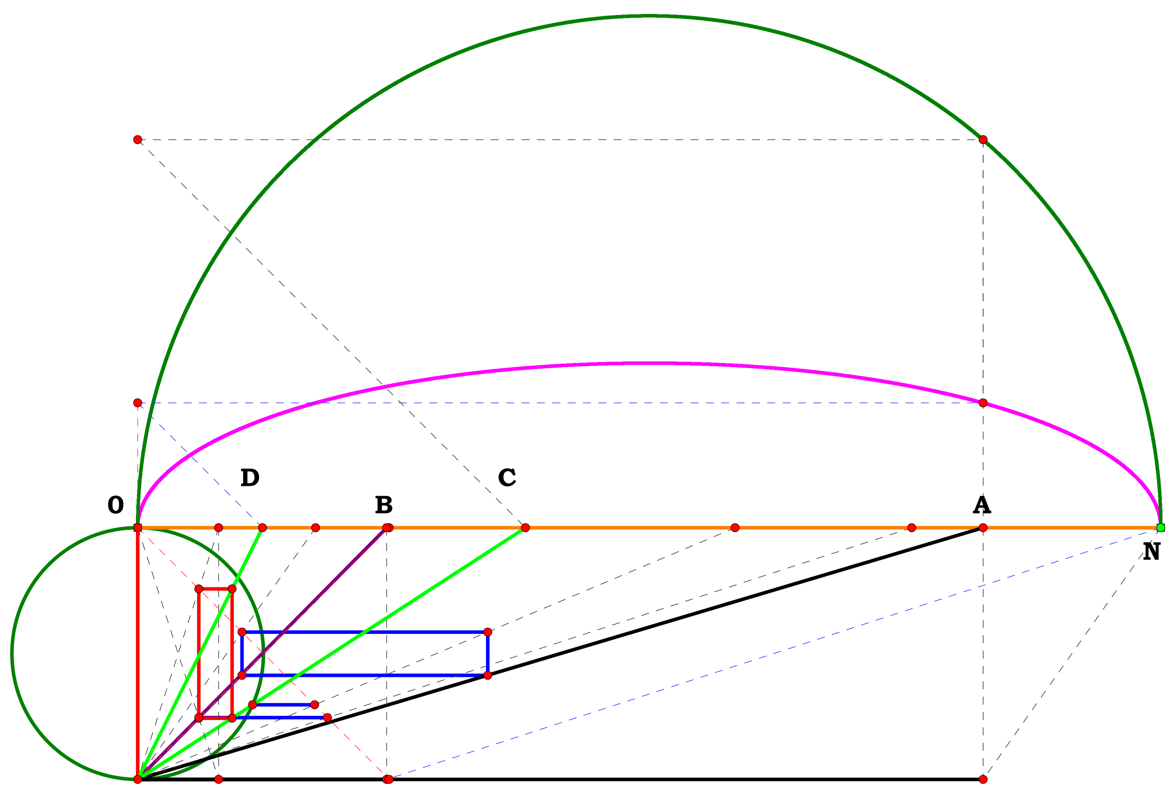
Equations:

A = 3.36000
B = 2.64315
C = 1.54100
D = 2.86113

Circle $\sqrt{A\cdot(N-A)}-C = 0.00000$

Ellipse $\frac{B\cdot\sqrt{A\cdot(N-A)}}{N-B}-D = 0.00000$

Ellipse E2.



One will note that in this construction, every ellipse is possible, however, there is no major and minor axis; there is just the axis.

An elipse is that boundary in a plane from the locus of a segment as a proportional to the proprotional to half the segment as determined by the root of both parts of that segment on the perpendicular to that point.

Equations:

A = 3.36000
B = 0.98967
C = 1.54100
D = 0.49563

Circle $\sqrt{A\cdot(N-A)}-C = 0.00000$

Ellipse $\frac{B\cdot\sqrt{A\cdot(N-A)}}{N-B}-D = 0.00000$

The Myth of Trigonometry

John Clark

John 312

The Myth of Trigonometry.

If one examine all of my work in Geometry, there are two things you will not find in the work: so called angles and Trigonometry. In the thousands of pages of demonstrations, and wave forms, I have never found a reason or a use for it. If one examines and thinks about the following plates, which I just used for video demonstrations, one will find the mythology of Trigonometry. Every bit of it derived from a simple geometric figure and simple algebra. If you know anything about Trigonometry, maybe you can recall the mythologies and lies told to support the obfuscation of the simple. And it is amazing, all of the so called geniuses could not just see it.

I don't know, but I do not believe that lack of awareness is intelligence.

In case you are having a hard time with it, maybe you are thinking too hard about it. A plane is only 2 dimensions, meaning you only require two variables. Only 2, no more, no less. That means that all an angle can possibly be is a simple ratio. If you are able, recall all the impressive, so called advanced mathematics trigonometry is claimed to be, all the thick volumes of problems, very impressive. Really?

Now, look at the plates and see how simple it really is, and how much obfuscation is required to make those books.

Notice something else, the geometric figure is independent of a right angle and is perfectly comfortable with any angle, and any triangle. It works, like everything I demonstrate, right from the unit. It even works fine for the so called Pythagorean Theorem, which, by the way, was never completed. Take a look at Pythagoras Revisited in The Delian Quest. I decided I had to fix it to do the *Delian Quest*.

Do you still seriously think that a scientist has any right to bitch about the religious fanatics?

Trigonometry

Trigonometry (from Greek *trigōnon*, "triangle" and *metron*, "measure"[1]) is a branch of mathematics that studies relationships between side lengths and angles of triangles. The field emerged in the Hellenistic world during the 3rd century BC from applications of geometry to astronomical studies.[2] The Greeks focused on the calculation of chords, while mathematicians in India created the earliest-known tables of values for trigonometric ratios (also called trigonometric functions) such as sine.[3]

Throughout history, trigonometry has been applied in areas such as geodesy, surveying, celestial mechanics, and navigation.[4]

Trigonometry is known for its many identities,[5][6] which are equations used for rewriting trigonometrical expressions to solve equations, to find a more useful expression, or to discover new relationships.[7]

Contents

History

Sumerian astronomers studied angle measure, using a division of circles into 360 degrees.[9] They, and later the Babylonians, studied the ratios of the sides of similar triangles and discovered some properties of these ratios but did not turn that into a systematic method for finding sides and angles of triangles. The ancient Nubians used a similar method.[10]

Hipparchus, credited with compiling the first trigonometric table, has been described as "the father of trigonometry".[8]

In the 3rd century BC, Hellenistic mathematicians such as Euclid and Archimedes studied the properties of chords and inscribed angles in circles, and they proved theorems that are equivalent to modern trigonometric formulae, although they presented them geometrically rather than algebraically. In 140 BC, Hipparchus (from Nicaea, Asia Minor) gave the first tables of chords, analogous to modern tables of sine values, and used them to solve problems in trigonometry and spherical trigonometry.[11] In the 2nd century AD, the Greco-Egyptian astronomer Ptolemy (from Alexandria, Egypt) constructed detailed trigonometric tables (Ptolemy's table of chords) in Book 1, chapter 11 of his *Almagest*.[12] Ptolemy used chord length to define his trigonometric functions, a minor difference from the sine convention we use today.[13] (The value we call sin(θ) can be found by looking up the chord length for twice the angle of interest (2θ) in Ptolemy's table, and then dividing that value by two.) Centuries passed before more detailed tables were produced, and Ptolemy's treatise remained in use for performing trigonometric calculations in astronomy throughout the next 1200 years in the medieval Byzantine, Islamic, and, later, Western European worlds.

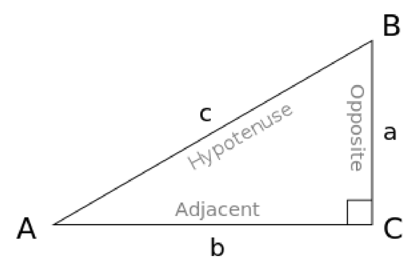
The modern sine convention is first attested in the *Surya Siddhanta*, and its properties were further documented by the 5th century (AD) Indian mathematician and astronomer Aryabhata.[14] These Greek and Indian works were translated and expanded by medieval Islamic mathematicians. By the 10th century, Islamic mathematicians were using all six trigonometric functions, had tabulated their values, and were applying them to problems in spherical geometry.[15][16] The Persian polymath Nasir al-Din al-Tusi has been described as the creator of trigonometry as a mathematical discipline in its own right.[17][18][19] Nasīr al-Dīn al-Tūsī was the first to treat trigonometry as a mathematical discipline independent from astronomy, and he developed spherical trigonometry into its present form.[20] He listed the six distinct cases of a right-angled triangle in spherical trigonometry, and in his *On the Sector Figure*, he stated the law of sines for plane and spherical triangles, discovered the law of tangents for spherical triangles, and provided proofs for both these laws.[21] Knowledge of trigonometric functions and methods reached Western Europe via Latin translations of Ptolemy's Greek *Almagest* as well as the works of Persian and Arab astronomers such as Al Battani and Nasir al-Din al-Tusi.[22] One of the earliest works on trigonometry by a northern European mathematician is *De Triangulis* by the 15th

century German mathematician Regiomontanus, who was encouraged to write, and provided with a copy of the *Almagest*, by the Byzantine Greek scholar cardinal Basilios Bessarion with whom he lived for several years.[23] At the same time, another translation of the *Almagest* from Greek into Latin was completed by the Cretan George of Trebizond.[24] Trigonometry was still so little known in 16th-century northern Europe that Nicolaus Copernicus devoted two chapters of *De revolutionibus orbium coelestium* to explain its basic concepts.

Driven by the demands of navigation and the growing need for accurate maps of large geographic areas, trigonometry grew into a major branch of mathematics.[25] Bartholomaeus Pitiscus was the first to use the word, publishing his *Trigonometria* in 1595.[26] Gemma Frisius described for the first time the method of triangulation still used today in surveying. It was Leonhard Euler who fully incorporated complex numbers into trigonometry. The works of the Scottish mathematicians James Gregory in the 17th century and Colin Maclaurin in the 18th century were influential in the development of trigonometric series.[27] Also in the 18th century, Brook Taylor defined the general Taylor series.[28]

Trigonometric ratios

Trigonometric ratios are the ratios between edges of a right triangle. These ratios are given by the following trigonometric functions of the known angle A, where a, b and c refer to the lengths of the sides in the accompanying figure:



In this right triangle: $\sin A = a/c$; $\cos A = b/c$; $\tan A = a/b$.

- **Sine** function (sin), defined as the ratio of the side opposite the angle to the hypotenuse.

$$\sin A = \frac{\text{opposite}}{\text{hypotenuse}} = \frac{a}{c}.$$

- **Cosine** function (cos), defined as the ratio of the adjacent leg (the side of the triangle joining the angle to the right angle) to the hypotenuse.

$$\cos A = \frac{\text{adjacent}}{\text{hypotenuse}} = \frac{b}{c}.$$

- **Tangent** function (tan), defined as the ratio of the opposite leg to the adjacent leg.

$$\tan A = \frac{\text{opposite}}{\text{adjacent}} = \frac{a}{b} = \frac{a/c}{b/c} = \frac{\sin A}{\cos A}.$$

The hypotenuse is the side opposite to the 90 degree angle in a right triangle; it is the longest side of the triangle and one of the two sides adjacent to angle A. The **adjacent leg** is the other side that is adjacent to angle A. The **opposite side** is the side that is opposite to angle A. The terms **perpendicular** and **base** are sometimes used for the opposite and adjacent sides respectively. See below under Mnemonics.

Since any two right triangles with the same acute angle A are similar[29], the value of a trigonometric ratio depends only on the angle A.

The reciprocals of these functions are named the **cosecant** (csc), **secant** (sec), and **cotangent** (cot), respectively:

$$\csc A = \frac{1}{\sin A} = \frac{\text{hypotenuse}}{\text{opposite}} = \frac{c}{a},$$

$$\sec A = \frac{1}{\cos A} = \frac{\text{hypotenuse}}{\text{adjacent}} = \frac{c}{b},$$

$$\cot A = \frac{1}{\tan A} = \frac{\text{adjacent}}{\text{opposite}} = \frac{\cos A}{\sin A} = \frac{b}{a}.$$

The cosine, cotangent, and cosecant are so named because they are respectively the sine, tangent, and secant of the complementary angle abbreviated to "co-".[30]

With these functions, one can answer virtually all questions about arbitrary triangles by using the law of sines and the law of cosines.[31] These laws can be used to compute the remaining angles and sides of any triangle as soon as two sides and their included angle or two angles and a side or three sides are known.

Mnemonics

A common use of mnemonics is to remember facts and relationships in trigonometry. For example, the *sine*, *cosine*, and *tangent* ratios in a right triangle can be remembered by representing them and their corresponding sides as strings of letters. For instance, a mnemonic is SOH-CAH-TOA:[32]

Sine = **O**pposite ÷ **H**ypotenuse
Cosine = **A**djacent ÷ **H**ypotenuse
Tangent = **O**pposite ÷ **A**djacent

One way to remember the letters is to sound them out phonetically (i.e., *SOH-CAH-TOA*, which is pronounced 'so-ka-**toe**-uh' /soʊkæˈtoʊə/). Another method is to expand the letters into a sentence, such as "**S**ome **O**ld **H**ippie **C**aught **A**nother **H**ippie **T**rippin' **O**n **A**cid".[33]

The unit circle and common trigonometric values

Trigonometric ratios can also be represented using the unit circle, which is the circle of radius 1 centered at the origin in the plane.[34] In this setting, the terminal side of an angle *A* placed in standard position will intersect the unit circle in a point (x,y), where $x = \cos A$ and $y = \sin A$.[34] This representation allows for the calculation of commonly found trigonometric values, such as those in the following table:[35]

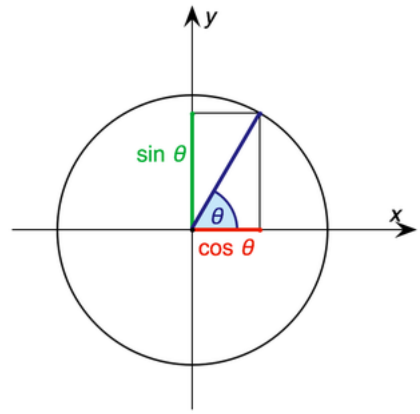


Fig. 1a – Sine and cosine of an angle θ defined using the unit circle.

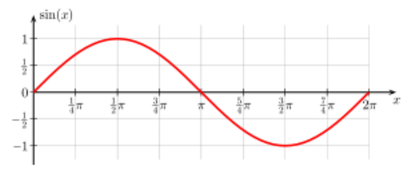
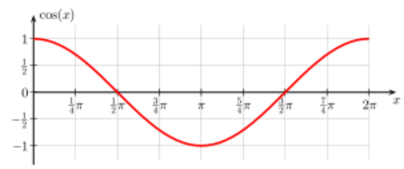
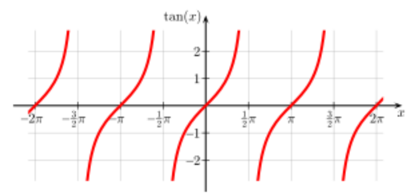
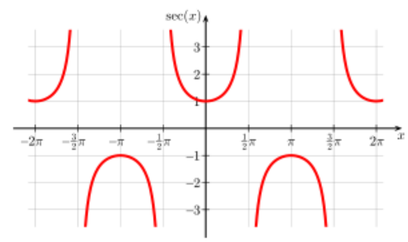
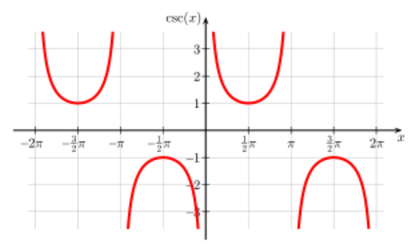
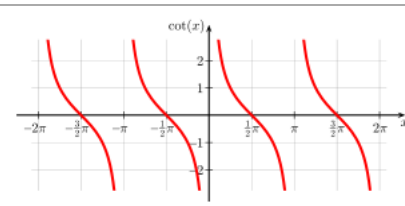
Function	0	$\pi/6$	$\pi/4$	$\pi/3$	$\pi/2$	$2\pi/3$	$3\pi/4$	$5\pi/6$	π
sine	0	$1/2$	$\sqrt{2}/2$	$\sqrt{3}/2$	1	$\sqrt{3}/2$	$\sqrt{2}/2$	$1/2$	0
cosine	1	$\sqrt{3}/2$	$\sqrt{2}/2$	$1/2$	0	$-1/2$	$-\sqrt{2}/2$	$-\sqrt{3}/2$	-1
tangent	0	$\sqrt{3}/3$	1	$\sqrt{3}$	undefined	$-\sqrt{3}$	-1	$-\sqrt{3}/3$	0
secant	1	$2\sqrt{3}/3$	$\sqrt{2}$	2	undefined	-2	$-\sqrt{2}$	$-2\sqrt{3}/3$	-1
cosecant	undefined	2	$\sqrt{2}$	$2\sqrt{3}/3$	1	$2\sqrt{3}/3$	$\sqrt{2}$	2	undefined
cotangent	undefined	$\sqrt{3}$	1	$\sqrt{3}/3$	0	$-\sqrt{3}/3$	-1	$-\sqrt{3}$	undefined

Trigonometric functions of real or complex variables

Using the unit circle, one can extend the definitions of trigonometric ratios to all positive and negative arguments[36] (see trigonometric function).

Graphs of trigonometric functions

The following table summarizes the properties of the graphs of the six main trigonometric functions:[37][38]

Function	Period	Domain	Range	Graph
sine	2π	$(-\infty, \infty)$	$[-1, 1]$	
cosine	2π	$(-\infty, \infty)$	$[-1, 1]$	
tangent	π	$x \neq \pi/2 + n\pi$	$(-\infty, \infty)$	
secant	2π	$x \neq \pi/2 + n\pi$	$(-\infty, -1] \cup [1, \infty)$	
cosecant	2π	$x \neq n\pi$	$(-\infty, -1] \cup [1, \infty)$	
cotangent	π	$x \neq n\pi$	$(-\infty, \infty)$	

Inverse trigonometric functions

Because the six main trigonometric functions are periodic, they are not injective (or, 1 to 1), and thus are not invertible. By restricting the domain of a trigonometric function, however, they can be made invertible.[39]:48ff

The names of the inverse trigonometric functions, together with their domains and range, can be found in the following table:[39]:48ff[40]:521ff

Name	Usual notation	Definition	Domain of *x* for real result	Range of usual principal value (radians)	Range of usual principal value (degrees)
arcsine	$y = \arcsin(x)$	$x = \sin(y)$	$-1 \le x \le 1$	$-\frac{\pi}{2} \le y \le \frac{\pi}{2}$	$-90° \le y \le 90°$
arccosine	$y = \arccos(x)$	$x = \cos(y)$	$-1 \le x \le 1$	$0 \le y \le \pi$	$0° \le y \le 180°$
arctangent	$y = \arctan(x)$	$x = \tan(y)$	all real numbers	$-\frac{\pi}{2} < y < \frac{\pi}{2}$	$-90° < y < 90°$
arccotangent	$y = \operatorname{arccot}(x)$	$x = \cot(y)$	all real numbers	$0 < y < \pi$	$0° < y < 180°$
arcsecant	$y = \operatorname{arcsec}(x)$	$x = \sec(y)$	$x \le -1$ or $1 \le x$	$0 \le y < \frac{\pi}{2}$ or $\frac{\pi}{2} < y \le \pi$	$0° \le y < 90°$ or $90° < y \le 180°$
arccosecant	$y = \operatorname{arccsc}(x)$	$x = \csc(y)$	$x \le -1$ or $1 \le x$	$-\frac{\pi}{2} \le y < 0$ or $0 < y \le \frac{\pi}{2}$	$-90° \le y < 0°$ or $0° < y \le 90°$

Power series representations

When considered as functions of a real variable, the trigonometric ratios can be represented by an infinite series. For instance, sine and cosine have the following representations:[41]

$$\begin{aligned}\sin x &= x - \frac{x^3}{3!} + \frac{x^5}{5!} - \frac{x^7}{7!} + \cdots \\ &= \sum_{n=0}^{\infty} \frac{(-1)^n x^{2n+1}}{(2n+1)!}\end{aligned}$$

$$\begin{aligned}\cos x &= 1 - \frac{x^2}{2!} + \frac{x^4}{4!} - \frac{x^6}{6!} + \cdots \\ &= \sum_{n=0}^{\infty} \frac{(-1)^n x^{2n}}{(2n)!}.\end{aligned}$$

With these definitions the trigonometric functions can be defined for complex numbers.[42] When extended as functions of real or complex variables, the following formula holds for the complex exponential:

$$e^{x+iy} = e^x(\cos y + i \sin y).$$

This complex exponential function, written in terms of trigonometric functions, is particularly useful.[43][44]

Calculating trigonometric functions

Trigonometric functions were among the earliest uses for mathematical tables.[45] Such tables were incorporated into mathematics textbooks and students were taught to look up values and how to interpolate between the values listed to get higher accuracy.[46] Slide rules had special scales for

trigonometric functions.[47]

Scientific calculators have buttons for calculating the main trigonometric functions (sin, cos, tan, and sometimes cis and their inverses).[48] Most allow a choice of angle measurement methods: degrees, radians, and sometimes gradians. Most computer programming languages provide function libraries that include the trigonometric functions.[49] The floating point unit hardware incorporated into the microprocessor chips used in most personal computers has built-in instructions for calculating trigonometric functions.[50]

Other Trigonometric Functions

In addition to the six ratios listed earlier, there are additional trigonometric functions that were historically important, though seldom used today. These include the chord ($\mathrm{crd}(\theta) = 2\sin(\frac{\theta}{2})$), the versine ($\mathrm{versin}(\theta) = 1 - \cos(\theta) = 2\sin^2(\frac{\theta}{2})$) (which appeared in the earliest tables[51]), the coversine ($\mathrm{coversin}(\theta) = 1 - \sin(\theta) = \mathrm{versin}(\frac{\pi}{2} - \theta)$), the haversine ($\mathrm{haversin}(\theta) = \frac{1}{2}\mathrm{versin}(\theta) = \sin^2(\frac{\theta}{2})$),[52] the exsecant ($\mathrm{exsec}(\theta) = \sec(\theta) - 1$), and the excosecant ($\mathrm{excsc}(\theta) = \mathrm{exsec}(\frac{\pi}{2} - \theta) = \csc(\theta) - 1$). See List of trigonometric identities for more relations between these functions.

Applications

Astronomy

For centuries, spherical trigonometry has been used for locating solar, lunar, and stellar positions,[53] predicting eclipses, and describing the orbits of the planets.[54]

In modern times, the technique of triangulation is used in astronomy to measure the distance to nearby stars,[55] as well as in satellite navigation systems.[16]

Navigation

Historically, trigonometry has been used for locating latitudes and longitudes of sailing vessels, plotting courses, and calculating distances during navigation.[56]

Trigonometry is still used in navigation through such means as the Global Positioning System and artificial intelligence for autonomous vehicles.[57]

Surveying

In land surveying, trigonometry is used in the calculation of lengths, areas, and relative angles between objects.[58]

On a larger scale, trigonometry is used in geography to measure distances between landmarks,[59]

Periodic functions

Sextants are used to measure the angle of the sun or stars with respect to the horizon. Using trigonometry and a marine chronometer, the position of the ship can be determined from such measurements.

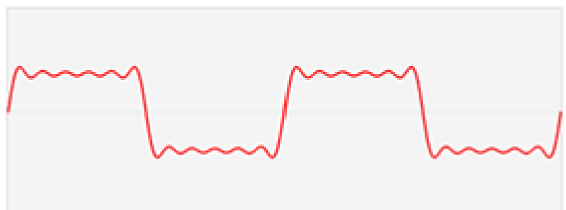
The sine and cosine functions are fundamental to the theory of periodic functions,[60] such as those that describe sound and light waves. Fourier discovered that every continuous, periodic function could be described as an infinite sum of trigonometric functions.

Even non-periodic functions can be represented as an integral of sines and cosines through the Fourier transform. This has applications to quantum mechanics[61] and communications[62], among other fields.

Optics and Acoustics

Trigonometry is useful in many physical sciences,[63] including acoustics,[64] and optics[64]. In these areas, they are used to describe sound and light waves, and to solve boundary- and transmission-related problems.[65]

Other applications



Function $s(x)$ (in red) is a sum of six sine functions of different amplitudes and harmonically related frequencies. Their summation is called a Fourier series. The Fourier transform, $S(f)$ (in blue), which depicts amplitude vs frequency, reveals the 6 frequencies (*at odd harmonics*) and their amplitudes (*1/odd number*).

Other fields that use trigonometry or trigonometric functions include music theory,[66] geodesy, audio synthesis,[67] architecture,[68] electronics,[66] biology,[69] medical imaging (CT scans and ultrasound),[70] chemistry,[71] number theory (and hence cryptology),[72] seismology,[64] meteorology,[73] oceanography,[74] image compression,[75] phonetics,[76] economics,[77] electrical engineering, mechanical engineering, civil engineering,[66] computer graphics,[78] cartography,[66] crystallography[79] and game development.[78]

Identities

Trigonometry has been noted for its many identities, that is, equations that are true for all possible inputs.[80]

Identities involving only angles are known as *trigonometric identities*. Other equations, known as *triangle identities*,[81] relate both the sides and angles of a given triangle.

Triangle identities

In the following identities, A, B and C are the angles of a triangle and a, b and c are the lengths of sides of the triangle opposite the respective angles (as shown in the diagram).[82]

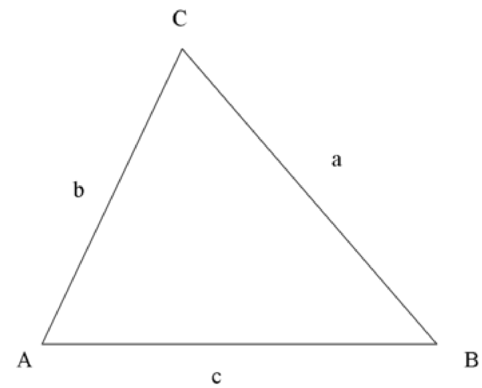
Law of sines

The **law of sines** (also known as the "sine rule") for an arbitrary triangle states:[83]

$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C} = 2R = \frac{abc}{2\Delta},$$

where Δ is the area of the triangle and R is the radius of the circumscribed circle of the triangle:

$$R = \frac{abc}{\sqrt{(a+b+c)(a-b+c)(a+b-c)(b+c-a)}}.$$



Triangle with sides *a*,*b*,*c* and respectively opposite angles *A*,*B*,*C*

Law of cosines

The **law of cosines** (known as the cosine formula, or the "cos rule") is an extension of the Pythagorean theorem to arbitrary triangles:[83]

$$c^2 = a^2 + b^2 - 2ab\cos C,$$

or equivalently:

$$\cos C = \frac{a^2 + b^2 - c^2}{2ab}.$$

Law of tangents

The **law of tangents**, developed by François Viète, is an alternative to the Law of Cosines when solving for the unknown edges of a triangle, providing simpler computations when using trigonometric tables.[84] It is given by:

$$\frac{a-b}{a+b} = \frac{\tan\left[\frac{1}{2}(A-B)\right]}{\tan\left[\frac{1}{2}(A+B)\right]}$$

Area

Given two sides a and b and the angle between the sides C, the area of the triangle is given by half the product of the lengths of two sides and the sine of the angle between the two sides:[83]

Heron's formula is another method that may be used to calculate the area of a triangle. This formula states that if a triangle has sides of lengths a, b, and c, and if the semiperimeter is

$$s = \frac{1}{2}(a+b+c),$$

then the area of the triangle is:[85]

$$\text{Area} = \Delta = \sqrt{s(s-a)(s-b)(s-c)} = \frac{abc}{4R},$$

where R is the radius of the circumcircle of the triangle.

$$\text{Area} = \Delta = \frac{1}{2}ab\sin C.$$

Trigonometric identities

Pythagorean identities

The following trigonometric identities are related to the Pythagorean theorem and hold for any value:[86]

$$\sin^2 A + \cos^2 A = 1$$

$$\tan^2 A + 1 = \sec^2 A$$

$$\cot^2 A + 1 = \csc^2 A$$

Euler's formula

Euler's formula, which states that $e^{ix} = \cos x + i \sin x$, produces the following analytical identities for sine, cosine, and tangent in terms of e and the imaginary unit i:

$$\sin x = \frac{e^{ix} - e^{-ix}}{2i}, \qquad \cos x = \frac{e^{ix} + e^{-ix}}{2}, \qquad \tan x = \frac{i(e^{-ix} - e^{ix})}{e^{ix} + e^{-ix}}.$$

Other trigonometric identities

Other commonly used trigonometric identities include the half-angle identities, the angle sum and difference identities, and the product-to-sum identities.[29]

See also

- Aryabhata's sine table
- Generalized trigonometry
- Lénárt sphere
- List of triangle topics
- List of trigonometric identities
- Rational trigonometry
- Skinny triangle
- Small-angle approximation

- Trigonometric functions
- Unit circle
- Uses of trigonometry

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External links

- Khan Academy: Trigonometry, free online micro lectures (http://www.khanacademy.org/math/trigonometry)
- Trigonometry (https://web.archive.org/web/20071104225720/http://baqaqi.chi.il.us/buecher/mathematics/trigonometry/index.html) by Alfred Monroe Kenyon and Louis Ingold, The Macmillan Company,

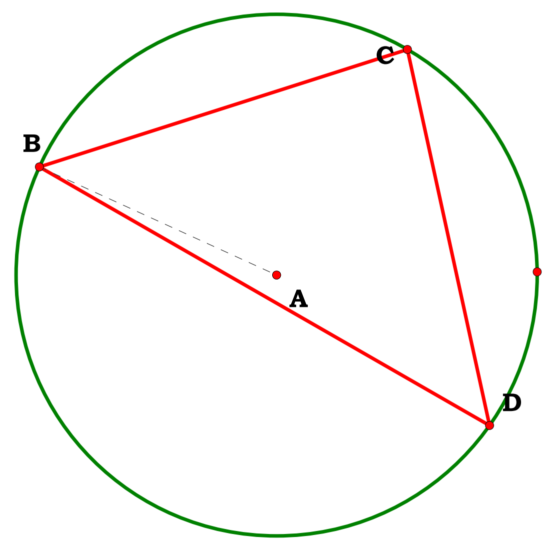
1914. In images, full text presented.

- Benjamin Banneker's Trigonometry Puzzle (http://www.maa.org/publications/periodicals/convergence/benjamin-bannekers-trigonometry-puzzle-introduction) at Convergence (http://www.maa.org/loci-category/convergence?page=1)
- Dave's Short Course in Trigonometry (http://www.clarku.edu/~djoyce/trig/) by David Joyce of Clark University
- Trigonometry, by Michael Corral, Covers elementary trigonometry, Distributed under GNU Free Documentation License (http://www.mecmath.net/trig/trigbook.pdf)

The Euclidean Proportion

AB = 3.45043 cm
2·AB = 6.90085 cm

BC = 5.11178 cm
CD = 5.09246 cm
BD = 6.87077 cm



$\frac{BC}{(2\cdot AB)} = 0.74075$

$\frac{CD}{(2\cdot AB)} = 0.73795$

$\frac{BD}{(2\cdot AB)} = 0.99564$

$m\angle CBD = 47.55679°$
$m\angle BDC = 47.79499°$
$m\angle DCB = 84.64822°$

$\sin(m\angle BDC) = 0.74075$
$\sin(m\angle CBD) = 0.73795$
$\sin(m\angle DCB) = 0.99564$

$\frac{BC}{(2\cdot AB)} - \sin(m\angle BDC) = 0.00000$

$\frac{CD}{(2\cdot AB)} - \sin(m\angle CBD) = 0.00000$

$\frac{BD}{(2\cdot AB)} - \sin(m\angle DCB) = 0.00000$

$\frac{BC}{CD} = 1.00379$

$\frac{BC}{BD} = 0.74399$

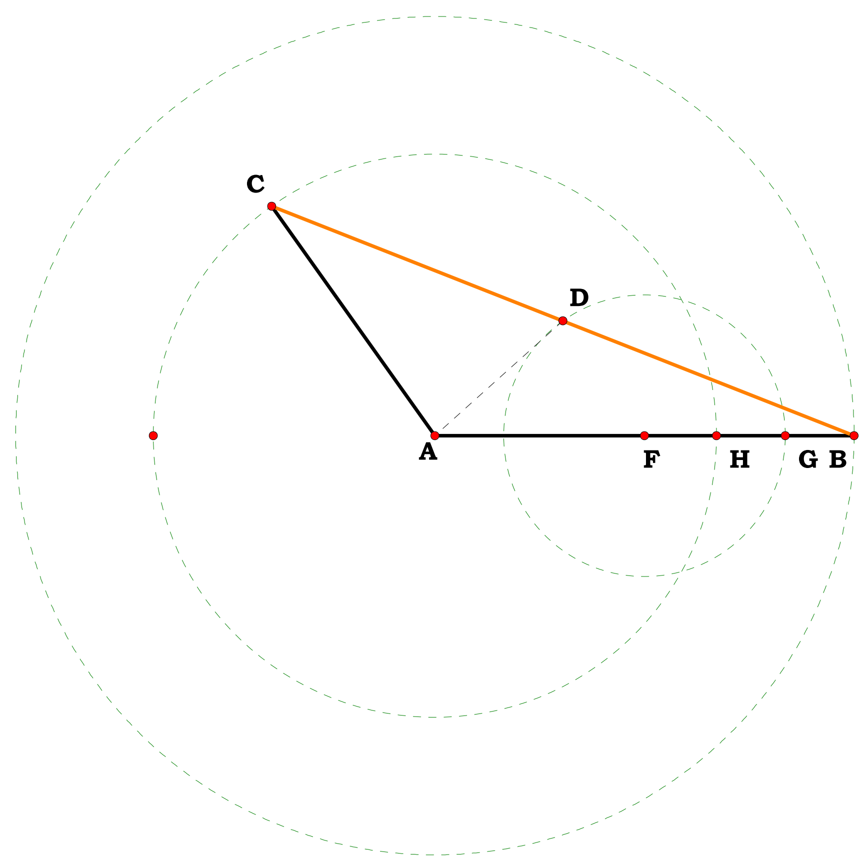
$\frac{CD}{BD} = 0.74118$

$\frac{BC}{CD} - \frac{\frac{BC}{(2\cdot AB)}}{\frac{CD}{(2\cdot AB)}} = 0.00000$

$\frac{BC}{BD} - \frac{\frac{BC}{(2\cdot AB)}}{\frac{BD}{(2\cdot AB)}} = 0.00000$

$\frac{CD}{BD} - \frac{\frac{CD}{(2\cdot AB)}}{\frac{BD}{(2\cdot AB)}} = 0.00000$

$$\frac{BC\cdot CD\cdot BD}{\sqrt{BC+CD+BD}\cdot\sqrt{(CD+BD)-BC}\cdot\sqrt{(BC-CD)+BD}\cdot\sqrt{(BC+CD)-BD}} - AB = 0.00000$$



AB = 5.54567 cm

AC = 3.72444 cm

BC = 8.28002 cm

AB+AC = 9.27010 cm

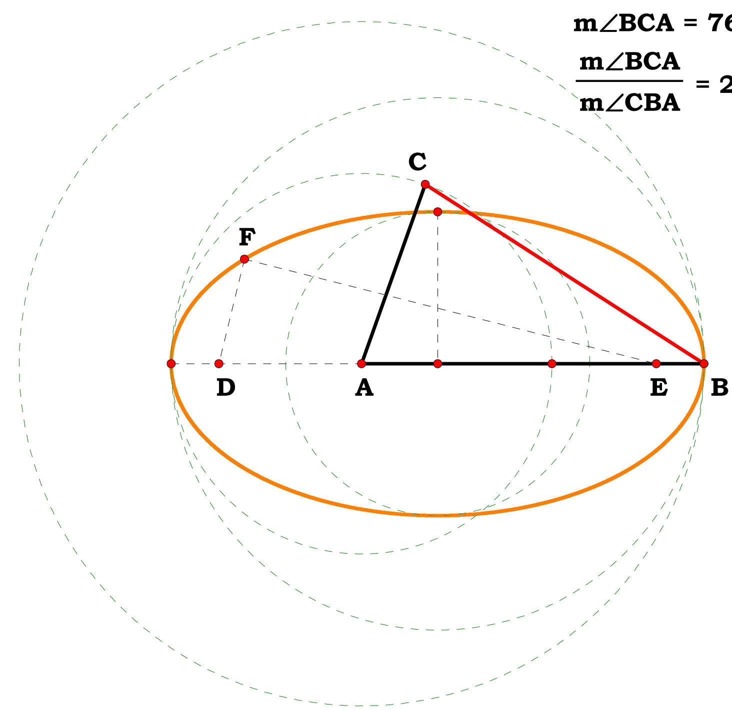
AB-AC = 1.82123 cm

AD = 2.27448 cm

$$(AB^2+AC^2)-\left(\frac{BC^2}{2}+2\cdot AD^2\right) = 0.00000\ cm^2$$

$$AB^2+AC^2 = 44.62585\ cm^2$$

$$2\cdot AD^2+\frac{BC^2}{2} = 44.62585\ cm^2$$



m∠CBA = 32.77288°

m∠BCA = 76.76737°

$$\frac{m\angle BCA}{m\angle CBA} = 2.34241$$

AB = 4.52967 cm

AC = 2.51883 cm

BC = 4.38522 cm

(AB+AC)-BC = 2.66328 cm

AB-AC-BC = -2.37439 cm

DE = 5.78857 cm

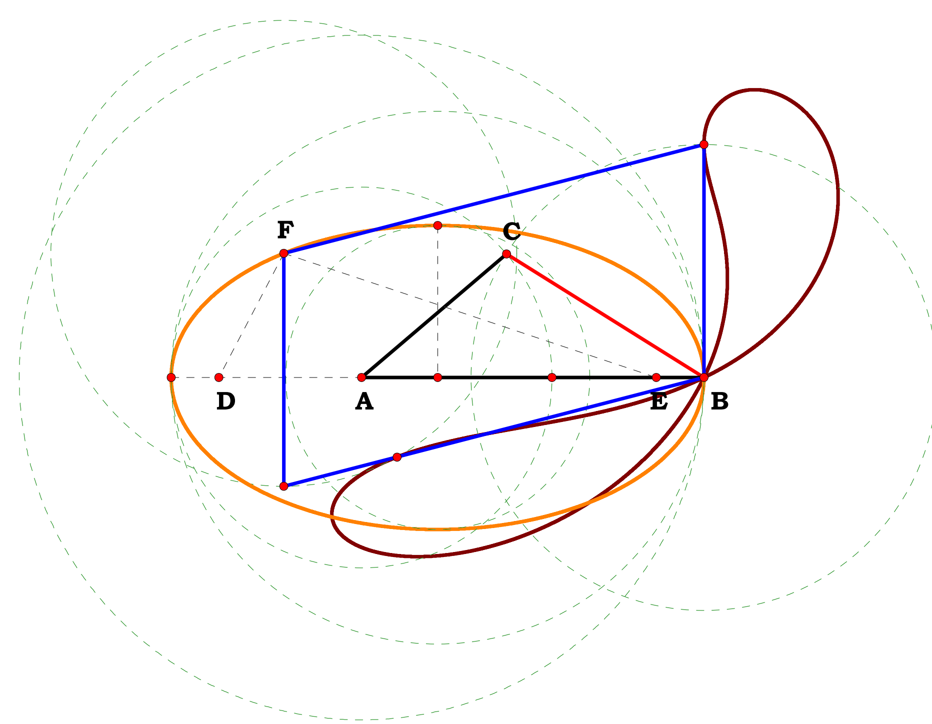
DF = 1.42690 cm

EF = 5.62160 cm

DF+EF = 7.04850 cm

(DF+EF)-BC = 2.66328 cm

(AB+AC)-(DF+EF) = 0.00000 cm



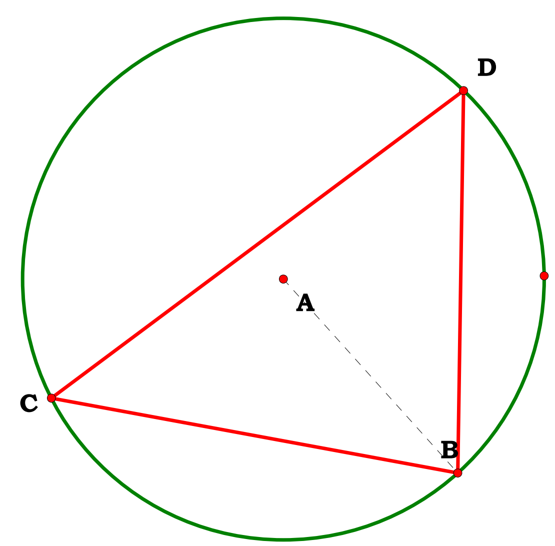
AB = 4.52967 cm
AC = 2.51883 cm
BC = 3.08224 cm
(AB+AC)-BC = 3.96626 cm
AB-AC-BC = -1.07141 cm

DE = 5.78857 cm
DF = 1.85407 cm
EF = 5.19443 cm
DF+EF = 7.04850 cm
(DF+EF)-BC = 3.96626 cm
(AB+AC)-(DF+EF) = 0.00000 cm

The Euclidean Proportion

AB = 3.45043 cm
2·AB = 6.90085 cm

BC = 5.46524 cm
CD = 6.80524 cm
BD = 5.06167 cm



$$\frac{BC}{(2\cdot AB)} = 0.79197$$

$$\frac{CD}{(2\cdot AB)} = 0.98614$$

$$\frac{BD}{(2\cdot AB)} = 0.73349$$

m∠CBD = 80.45102°
m∠BDC = 52.36960°
m∠DCB = 47.17939°

sin(m∠BDC) = 0.79197
sin(m∠CBD) = 0.98614
sin(m∠DCB) = 0.73349

$$\frac{BC}{(2\cdot AB)} - \sin(m\angle BDC) = 0.00000$$

$$\frac{CD}{(2\cdot AB)} - \sin(m\angle CBD) = 0.00000$$

$$\frac{BD}{(2\cdot AB)} - \sin(m\angle DCB) = 0.00000$$

$$\frac{BC}{CD} = 0.80309$$

$$\frac{BC}{BD} = 1.07973$$

$$\frac{CD}{BD} = 1.34446$$

$$\frac{BC}{CD} - \frac{\frac{BC}{(2\cdot AB)}}{\frac{CD}{(2\cdot AB)}} = 0.00000$$

$$\frac{BC}{BD} - \frac{\frac{BC}{(2\cdot AB)}}{\frac{BD}{(2\cdot AB)}} = 0.00000$$

$$\frac{CD}{BD} - \frac{\frac{CD}{(2\cdot AB)}}{\frac{BD}{(2\cdot AB)}} = 0.00000$$

$$\frac{BC\cdot CD\cdot BD}{\sqrt{BC+CD+BD}\cdot\sqrt{(CD+BD)-BC}\cdot\sqrt{(BC-CD)+BD}\cdot\sqrt{(BC+CD)-BD}} = 3.45043$$

$$\frac{BC\cdot CD\cdot BD}{\sqrt{BC+CD+BD}\cdot\sqrt{(CD+BD)-BC}\cdot\sqrt{(BC-CD)+BD}\cdot\sqrt{(BC+CD)-BD}} - AB = 0.00000$$

The Euclidean Proportion

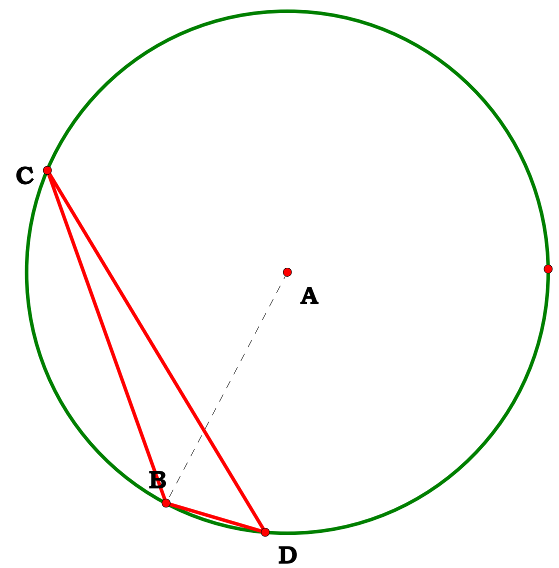
AB = 3.45043 cm

2·AB = 6.90085 cm

BC = 4.67208 cm

CD = 5.58699 cm

BD = 1.36941 cm



$$\frac{BC}{(2\cdot AB)} = 0.67703$$

$$\frac{CD}{(2\cdot AB)} = 0.80961$$

$$\frac{BD}{(2\cdot AB)} = 0.19844$$

$$\frac{BC}{CD} = 0.83624$$

$$\frac{BC}{BD} = 3.41176$$

$$\frac{CD}{BD} = 4.07987$$

$$\frac{BC}{CD} - \frac{\frac{BC}{(2\cdot AB)}}{\frac{CD}{(2\cdot AB)}} = 0.00000$$

$$\frac{BC}{BD} - \frac{\frac{BC}{(2\cdot AB)}}{\frac{BD}{(2\cdot AB)}} = 0.00000$$

$$\frac{CD}{BD} - \frac{\frac{CD}{(2\cdot AB)}}{\frac{BD}{(2\cdot AB)}} = 0.00000$$

$m\angle BDC = 42.61197°$

$m\angle CBD = 125.94228°$

$m\angle DCB = 11.44575°$

$$\frac{BC}{(2\cdot AB)} - \sin(m\angle BDC) = 0.00000$$

$$\frac{CD}{(2\cdot AB)} - \sin(m\angle CBD) = 0.00000$$

$$\frac{BD}{(2\cdot AB)} - \sin(m\angle DCB) = 0.00000$$

$$\frac{BC\cdot CD\cdot BD}{\sqrt{BC+CD+BD}\cdot\sqrt{(CD+BD)-BC}\cdot\sqrt{(BC-CD)+BD}\cdot\sqrt{(BC+CD)-BD}} - AB = 0.00000$$

$\sin(m\angle BDC) = 0.67703$

$\sin(m\angle CBD) = 0.80961$

$\sin(m\angle DCB) = 0.19844$

$$\sin^{-1}\left(\frac{BC}{(2\cdot AB)}\right) = 42.61197°$$

$$\sin^{-1}\left(\frac{CD}{(2\cdot AB)}\right) = 54.05772°$$

$$\sin^{-1}\left(\frac{BD}{(2\cdot AB)}\right) = 11.44575°$$

$$\sin^{-1}\left(\frac{BC}{(2\cdot AB)}\right) - m\angle BDC = 0.00000°$$

$$\sin^{-1}\left(\frac{CD}{(2\cdot AB)}\right) - m\angle CBD = -71.88456°$$

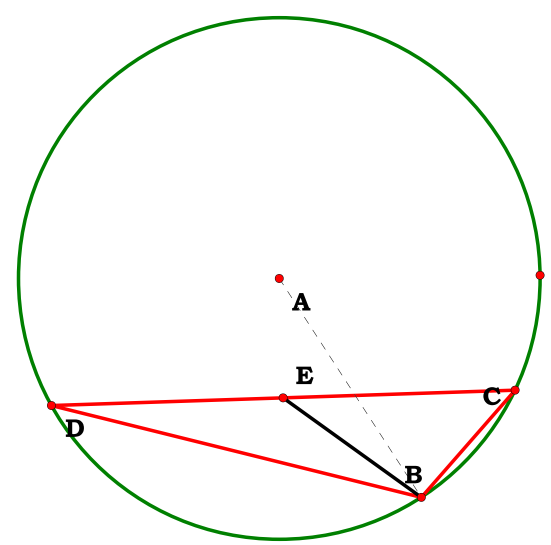
$$\sin^{-1}\left(\frac{BD}{(2\cdot AB)}\right) - m\angle DCB = 0.00000°$$

The sine function is working, but the inverse sing function seems to be rather iffy.

The Euclidean Proportion

AB = 3.45043 cm
2·AB = 6.90085 cm

BC = 1.88211 cm
CD = 6.13511 cm
BD = 5.04082 cm
BE = 2.25082 cm



$\frac{BC}{(2\cdot AB)} = 0.27274$

$\frac{CD}{(2\cdot AB)} = 0.88904$

$\frac{BD}{(2\cdot AB)} = 0.73046$

$\frac{BC}{CD} = 0.30678$

$\frac{BC}{BD} = 0.37337$

$\frac{CD}{BD} = 1.21709$

$\frac{BC}{CD} - \frac{\frac{BC}{(2\cdot AB)}}{\frac{CD}{(2\cdot AB)}} = 0.00000$

$\frac{BC}{BD} - \frac{\frac{BC}{(2\cdot AB)}}{\frac{BD}{(2\cdot AB)}} = 0.00000$

$\frac{CD}{BD} - \frac{\frac{CD}{(2\cdot AB)}}{\frac{BD}{(2\cdot AB)}} = 0.00000$

$\left(\frac{CD^2}{2} + 2\cdot BE^2\right) - (BC^2 + BD^2) = 0.00000\ cm^2$

m∠BDC = 15.82714°
m∠CBD = 117.24765°
m∠DCB = 46.92522°

$\frac{BC}{(2\cdot AB)} - \sin(m\angle BDC) = 0.00000$

$\frac{CD}{(2\cdot AB)} - \sin(m\angle CBD) = 0.00000$

$\frac{BD}{(2\cdot AB)} - \sin(m\angle DCB) = 0.00000$

$\frac{BC\cdot CD\cdot BD}{\sqrt{BC+CD+BD}\cdot\sqrt{(CD+BD)-BC}\cdot\sqrt{(BC-CD)+BD}\cdot\sqrt{(BC+CD)-BD}} - AB = 0.00000$

sin(m∠BDC) = 0.27274
sin(m∠CBD) = 0.88904
sin(m∠DCB) = 0.73046

$\sin^{-1}\left(\frac{BC}{(2\cdot AB)}\right) = 15.82714°$

$\sin^{-1}\left(\frac{CD}{(2\cdot AB)}\right) = 62.75235°$

$\sin^{-1}\left(\frac{BD}{(2\cdot AB)}\right) = 46.92522°$

$\sin^{-1}\left(\frac{BC}{(2\cdot AB)}\right) - m\angle BDC = 0.00000°$

$\sin^{-1}\left(\frac{CD}{(2\cdot AB)}\right) - m\angle CBD = -54.49530°$

$\sin^{-1}\left(\frac{BD}{(2\cdot AB)}\right) - m\angle DCB = 0.00000°$

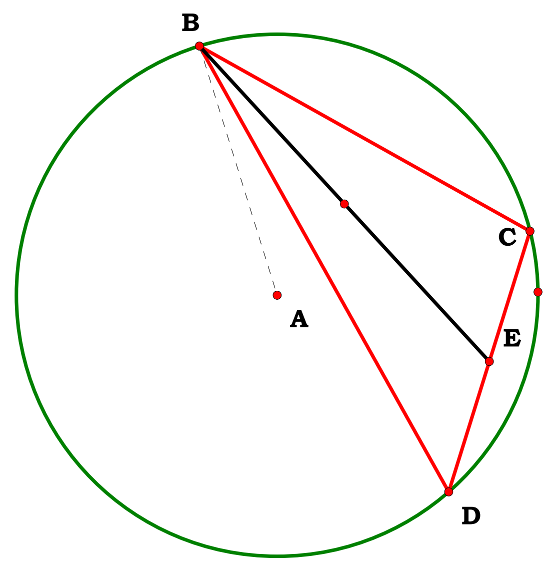
The sine function is working, but the inverse sing function seems to be rather iffy.

The Euclidean Proportion

$AB = 3.45043$ cm
$2 \cdot AB = 6.90085$ cm

$BC = 5.01265$ cm
$CD = 3.61254$ cm
$BD = 6.75380$ cm
$BE = 5.66636$ cm

$$\frac{BC}{(2 \cdot AB)} = 0.72638$$
$$\frac{CD}{(2 \cdot AB)} = 0.52349$$
$$\frac{BD}{(2 \cdot AB)} = 0.97869$$



$$\frac{BC}{CD} = 1.38757$$
$$\frac{BC}{BD} = 0.74220$$
$$\frac{CD}{BD} = 0.53489$$

$$\frac{BC}{CD} - \frac{\frac{BC}{(2 \cdot AB)}}{\frac{CD}{(2 \cdot AB)}} = 0.00000$$
$$\frac{BC}{BD} - \frac{\frac{BC}{(2 \cdot AB)}}{\frac{BD}{(2 \cdot AB)}} = 0.00000$$
$$\frac{CD}{BD} - \frac{\frac{CD}{(2 \cdot AB)}}{\frac{BD}{(2 \cdot AB)}} = 0.00000$$

$$\left(\frac{CD^2}{2} + 2 \cdot BE^2\right) - (BC^2 + BD^2) = 0.00000 \text{ cm}^2$$

$m\angle BDC = 46.58382°$
$m\angle CBD = 31.56676°$
$m\angle DCB = 101.84942°$

$$\frac{BC}{(2 \cdot AB)} - \sin(m\angle BDC) = 0.00000$$
$$\frac{CD}{(2 \cdot AB)} - \sin(m\angle CBD) = 0.00000$$
$$\frac{BD}{(2 \cdot AB)} - \sin(m\angle DCB) = 0.00000$$

$$\frac{BC \cdot CD \cdot BD}{\sqrt{BC+CD+BD} \cdot \sqrt{(CD+BD)-BC} \cdot \sqrt{(BC-CD)+BD} \cdot \sqrt{(BC+CD)-BD}} - AB = 0.00000$$

$\sin(m\angle BDC) = 0.72638$
$\sin(m\angle CBD) = 0.52349$
$\sin(m\angle DCB) = 0.97869$

$$\sin^{-1}\left(\frac{BC}{(2 \cdot AB)}\right) = 46.58382°$$
$$\sin^{-1}\left(\frac{CD}{(2 \cdot AB)}\right) = 31.56676°$$
$$\sin^{-1}\left(\frac{BD}{(2 \cdot AB)}\right) = 78.15058°$$

$$\sin^{-1}\left(\frac{BC}{(2 \cdot AB)}\right) - m\angle BDC = 0.00000°$$
$$\sin^{-1}\left(\frac{CD}{(2 \cdot AB)}\right) - m\angle CBD = 0.00000°$$
$$\sin^{-1}\left(\frac{BD}{(2 \cdot AB)}\right) - m\angle DCB = -23.69883°$$

The sine function is working, but the inverse sing function seems to be rather iffy.

AB = 6.61468 cm

DC = 4.29683 cm

DE = 4.29683 cm

CE = 8.12776 cm

2·AB = 13.22937 cm

$\frac{DC}{(2\cdot AB)} = 0.32480$

$\frac{DE}{(2\cdot AB)} = 0.32480$

$\frac{CE}{(2\cdot AB)} = 0.61437$

m∠CDE = 142.09368°

m∠DEC = 18.95316°

m∠ECD = 18.95316°

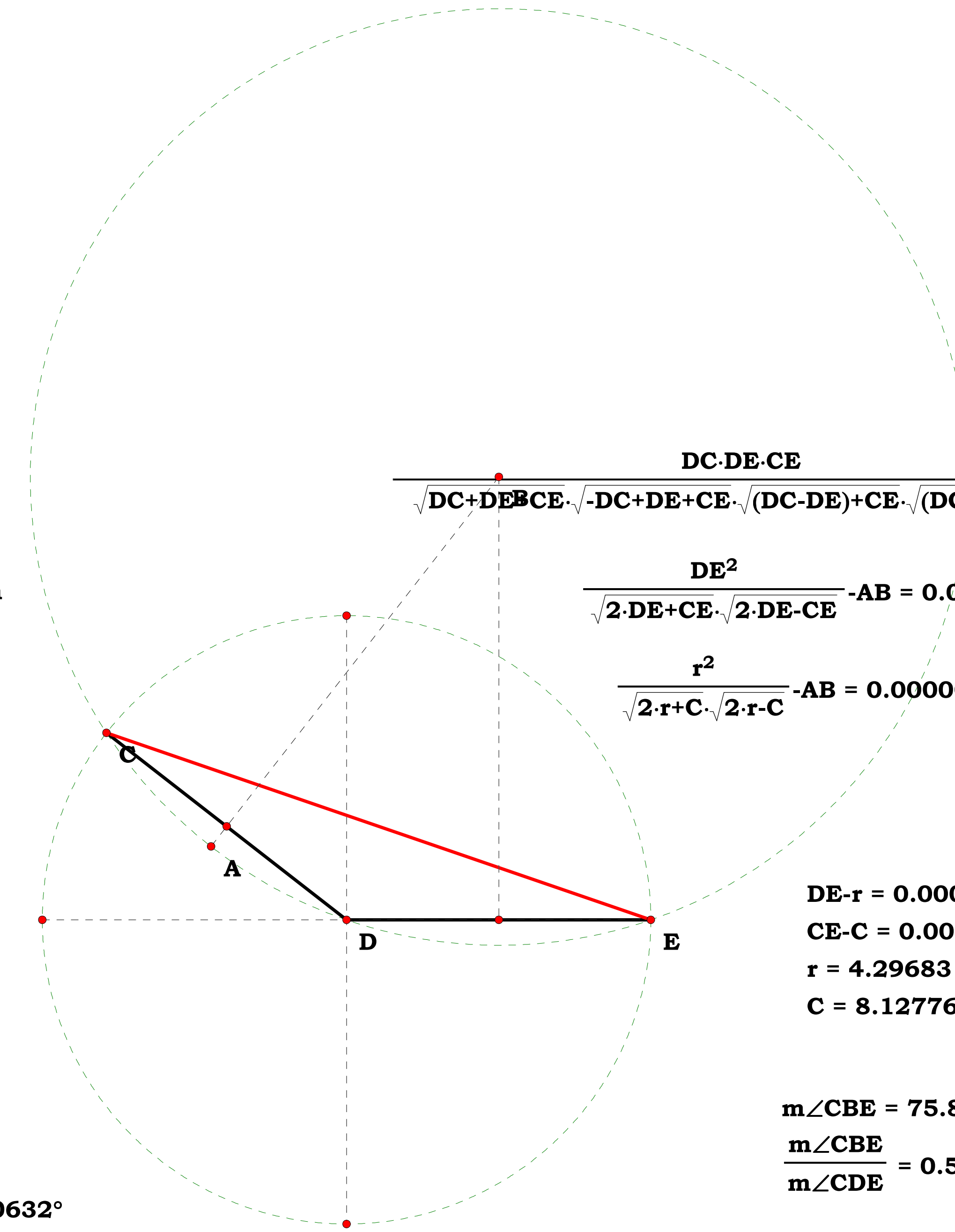
sin(m∠CDE) = 0.61437

sin(m∠DEC) = 0.32480

sin(m∠ECD) = 0.32480

$\sin^{-1}\left(\frac{CE}{(2\cdot AB)}\right) = 37.90632°$

$\sin^{-1}\left(\frac{CE}{(2\cdot AB)}\right) - m\angle CDE = -104.18737°$



$\frac{DC\cdot DE\cdot CE}{\sqrt{DC+DE+CE}\cdot\sqrt{-DC+DE+CE}\cdot\sqrt{(DC-DE)+CE}\cdot\sqrt{(DC+DE)-CE}} - AB = 0.00000$

$\frac{DE^2}{\sqrt{2\cdot DE+CE}\cdot\sqrt{2\cdot DE-CE}} - AB = 0.00000$

$\frac{r^2}{\sqrt{2\cdot r+C}\cdot\sqrt{2\cdot r-C}} - AB = 0.00000$

DE-r = 0.00000 cm

CE-C = 0.00000 cm

r = 4.29683 cm

C = 8.12776 cm

m∠CBE = 75.81263°

$\frac{m\angle CBE}{m\angle CDE} = 0.53354$

Foot Note 2.

The so called angle has never been, nor can ever be anything other than a standardized system of putting into ratio the sides of a triangle.

AB = 2.30615 cm
DC = 4.29683 cm
DE = 4.29683 cm
CE = 3.12362 cm
2·AB = 4.61230 cm

$$\frac{DC}{(2\cdot AB)} = 0.93160$$

$$\frac{DE}{(2\cdot AB)} = 0.93160$$

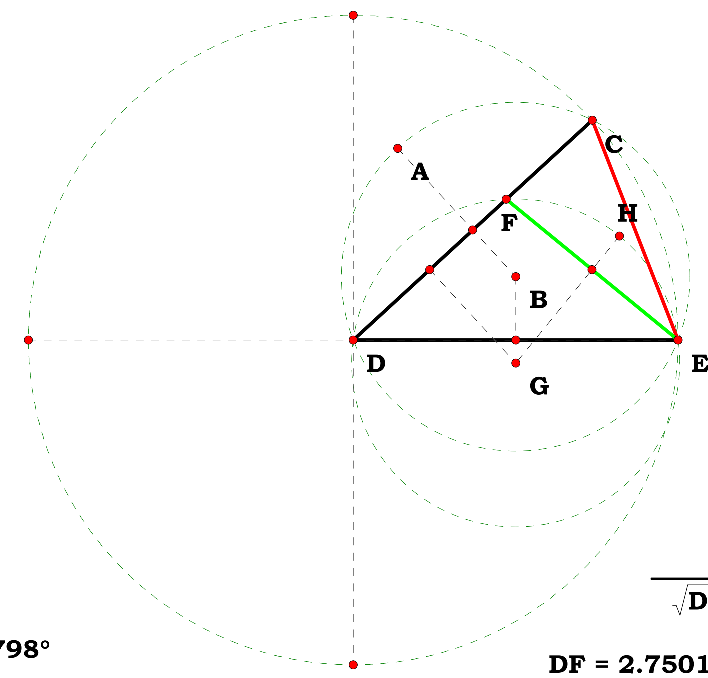
$$\frac{CE}{(2\cdot AB)} = 0.67724$$

m∠CDE = 42.62798°
m∠DEC = 68.68601°
m∠ECD = 68.68601°

sin(m∠CDE) = 0.67724
sin(m∠DEC) = 0.93160
sin(m∠ECD) = 0.93160

$$\sin^{-1}\left(\frac{CE}{(2\cdot AB)}\right) = 42.62798°$$

$$\sin^{-1}\left(\frac{CE}{(2\cdot AB)}\right) - m\angle CDE = 0.00000°$$



$$\frac{DC\cdot DE\cdot CE}{\sqrt{DC+DE+CE}\cdot\sqrt{-DC+DE+CE}\cdot\sqrt{(DC-DE)+CE}\cdot\sqrt{(DC+DE)-CE}} - AB = 0.00000$$

$$\frac{DE^2}{\sqrt{2\cdot DE+CE}\cdot\sqrt{2\cdot DE-CE}} - AB = 0.00000$$

DE-r = 0.00000 cm
CE-C = 0.00000 cm
r = 4.29683 cm
C = 3.12362 cm

$$\frac{r^2}{\sqrt{2\cdot r+C}\cdot\sqrt{2\cdot r-C}} - AB = 0.00000$$

$$\left(2\cdot r - \frac{r\cdot\left(2\cdot AB - \sqrt{4\cdot AB^2 - r^2}\right)}{AB}\right) - CE = 0.00000 \text{ cm}$$

$$\sqrt{2\cdot AB^2 + AB\cdot\sqrt{4\cdot AB^2 - C^2}} - r = 0.00000 \text{ cm}$$

$$\sqrt{2\cdot AB^2 - AB\cdot\sqrt{4\cdot AB^2 - C^2}} - r = -2.62036 \text{ cm}$$

$$4\cdot AB^2 - C^2 = 11.51637 \text{ cm}^2$$

m∠CBE = 85.25596°

$$\frac{m\angle CBE}{m\angle CDE} = 2.00000$$

Foot Note 2.

The so called angle has never been, nor can ever be anything other than a standardized system of putting into ratio the sides of a triangle. Many false mathematics used for so called non-Euclidean Geometries use trig to hide false geometric claims.

$$\frac{DE\cdot DF\cdot EF}{\sqrt{DE+DF+EF}\cdot\sqrt{(DF+EF)-DE}\cdot\sqrt{(DE-DF)+EF}\cdot\sqrt{(DE+DF)-EF}} - GH = 0.00000$$

DF = 2.75014 cm
EF = 2.93889 cm
GH = 2.16977 cm

$$\frac{EF}{2\cdot GH} = 0.67724$$

$$\frac{EF}{2\cdot GH} - \frac{CE}{(2\cdot AB)} = 0.00000$$

$$\sin^{-1}\left(\frac{EF}{2\cdot GH}\right) - \sin^{-1}\left(\frac{CE}{(2\cdot AB)}\right) = 0.00000°$$

$$\sqrt{2\cdot AB^2 - AB\cdot\sqrt{4\cdot AB^2 - C^2}} = 1.67647 \text{ cm}$$

$$\sqrt{2\cdot AB^2 + AB\cdot\sqrt{4\cdot AB^2 - C^2}} = 4.29683 \text{ cm}$$

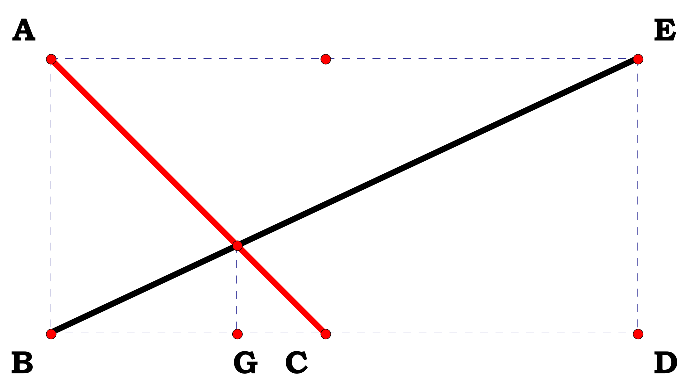
$$2\cdot r - \frac{r\cdot\left(2\cdot AB - \sqrt{4\cdot AB^2 - r^2}\right)}{AB} = 3.12362 \text{ cm}$$

$$2\cdot r - \frac{r\cdot\left(2\cdot AB + \sqrt{4\cdot AB^2 - r^2}\right)}{AB} = -3.12362 \text{ cm}$$

$$\left(2\cdot r - \frac{r\cdot\left(2\cdot AB + \sqrt{4\cdot AB^2 - r^2}\right)}{AB}\right) - CE = -6.24723 \text{ cm}$$

Plate 1 Result R1

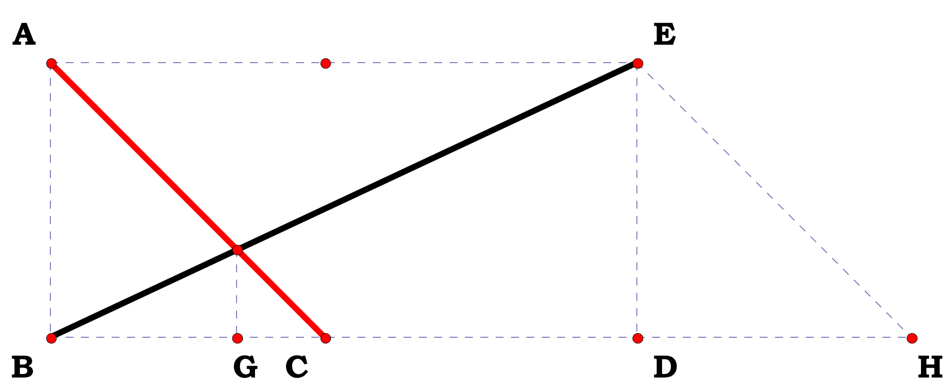
$$N_2 \cdot \frac{N_1}{N_2 + N_1} = 0.833$$



$N_1 \equiv 1$

$N_2 \equiv 5$

$AB := N_1 \quad AE := N_2$



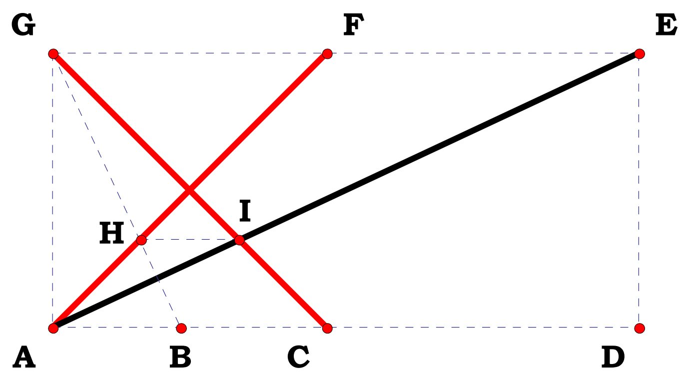
$$BD := AE \quad DH := AB \quad BH := BD + DH \quad BC := AB \quad BG := \frac{BD \cdot BC}{BH}$$

$$BG - N_2 \cdot \frac{N_1}{N_2 + N_1} = 0$$

Plate 1 Result R2

$$\frac{N_1^{\,2}}{N_2} = 0.2$$

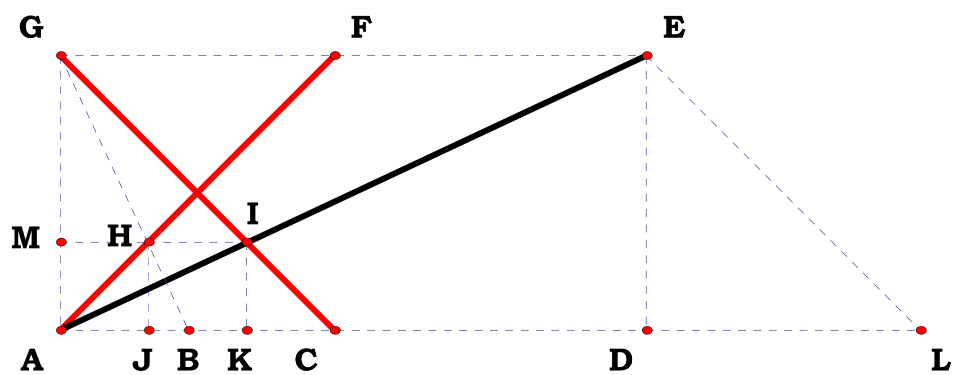
$N_1 \equiv 1$



$N_2 \equiv 5$

$AG := N_1 \quad AD := N_2$

$AC := AG \quad DE := AG$



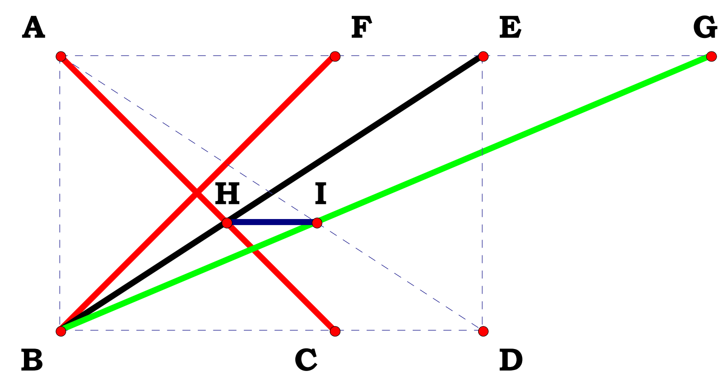
$$AL := AD + AC \quad IK := \frac{DE \cdot AC}{AL} \quad HJ := IK \quad AJ := HJ$$

$$AM := A\,GM := AG - AM \quad HM := AJ \quad AB := \frac{HM \cdot AG}{GM}$$

$$AB - \frac{N_1^{\,2}}{N_2} = 0$$

Plate 1 Result R3

$$\frac{N_2^{\,2}}{N_1} = 25$$



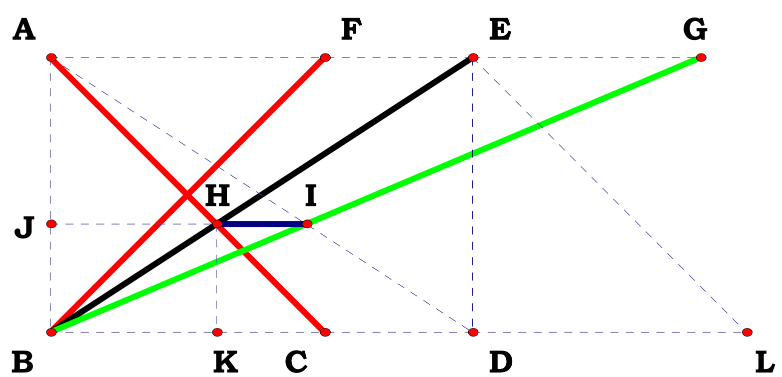
$N_1 \equiv 1$

$N_2 \equiv 5$

$AB := N_1$

$AE := N_2$

$BC := AB$



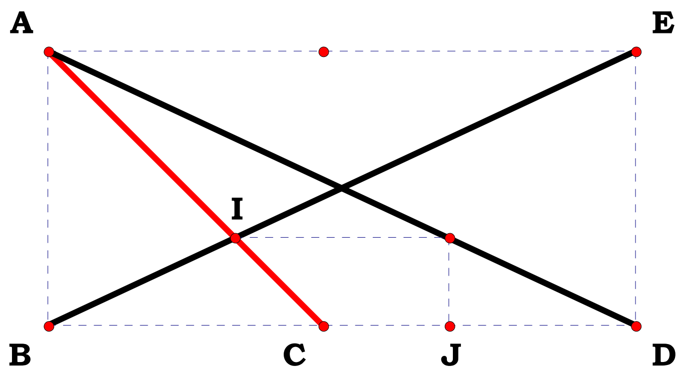
$DL := AB \quad BD := AE \quad BL := BD + DL \quad DE := AB \quad HK := \dfrac{DE \cdot BC}{BL}$

$AJ := AB - HK \quad JI := \dfrac{BD \cdot AJ}{AB} \quad BJ := HK \quad AG := \dfrac{JI \cdot AB}{BJ}$

$$AG - \frac{1}{N_1} \cdot N_2^{\,2} = 3.553 \times 10^{-15}$$

Plate 1 Result R4

$$\frac{N_2{}^2}{N_2+N_1}=4.167$$



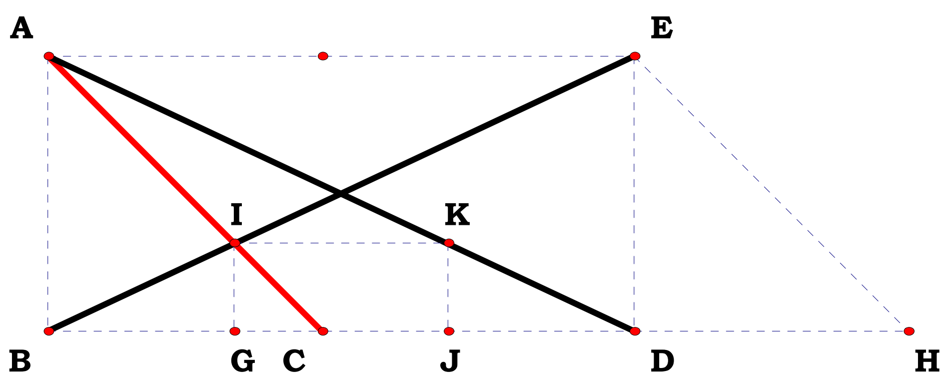
$N_1 \equiv 1$

$N_2 \equiv 5$

$AB := N_1 \quad BC := AB$

$DE := AB$

$AE := N_2 \quad BD := AE$



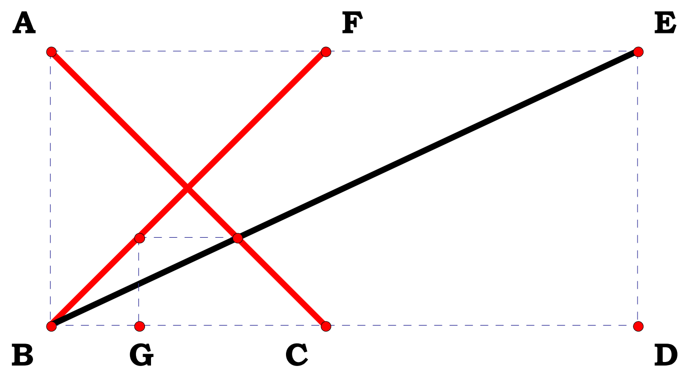
$DH := BC \quad BG := \dfrac{BD \cdot BC}{BD + DH} \quad GI := \dfrac{DE \cdot BG}{BD} \quad JK := GI \quad DJ := \dfrac{BD \cdot JK}{DE}$

$BJ := BD - DJ$

$$BJ - \frac{N_2{}^2}{N_2+N_1}=0$$

Plate 1 Result R5

$$\frac{N_1^{\,2}}{N_2 + N_1} = 0.167$$

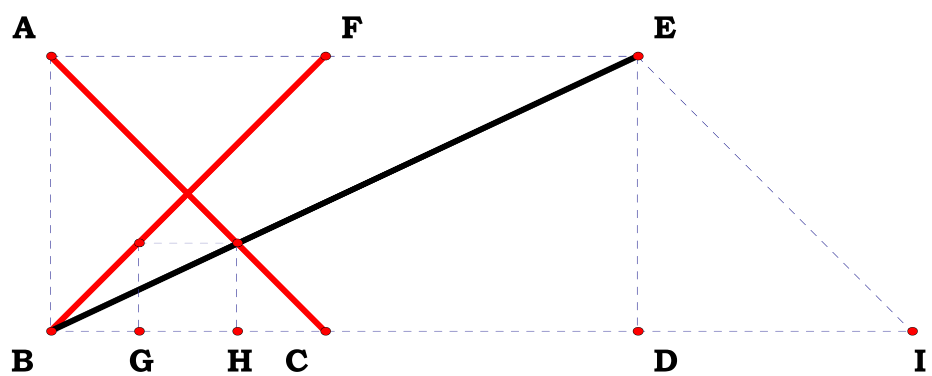


$N_1 \equiv 1$

$N_2 \equiv 5$

$AB := N_1 \quad BC := AB$

$AE := N_2 \quad BD := AE$

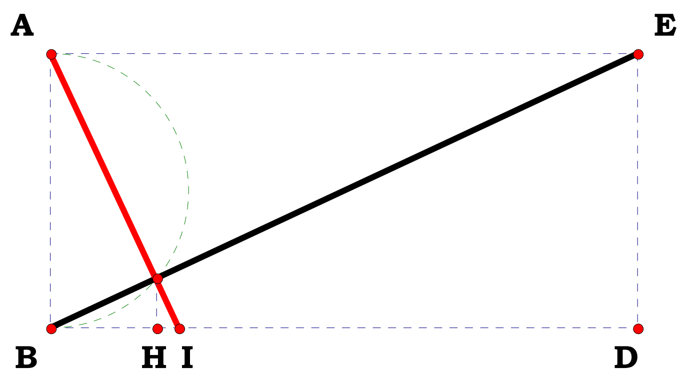


$$DI := BC \quad CH := \frac{BC^2}{BD + DI} \quad BG := CH$$

$$BG - \frac{N_1^{\,2}}{N_2 + N_1} = 0$$

Plate 2 Result R0

$$N_1^{\,2}\cdot\frac{N_2}{N_2^{\,2}+N_1^{\,2}} = 0.192$$



$N_1 \equiv 1$

$N_2 \equiv 5$

$AB := N_1 \quad DE := AB$

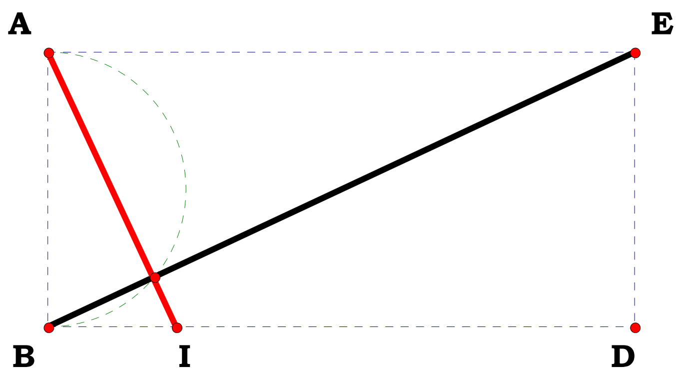
$AE := N_2 \quad BD := AE$

$$BI := \frac{DE\cdot AB}{BD} \quad BH := \frac{BD\cdot BI}{BD+BI}$$

$$BH - N_1^{\,2}\cdot\frac{N_2}{N_2^{\,2}+N_1^{\,2}} = 0$$

Plate 2 Result R1

$$\frac{N_1^{\,2}}{N_2} = 0.2$$



$N_1 \equiv 1$

$N_2 \equiv 5$

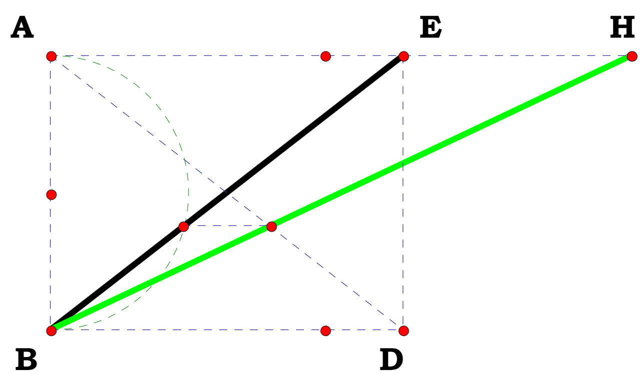
$AB := N_1 \quad DE := AB$

$AE := N_2 \quad BD := AE$

$$BI := \frac{DE \cdot AB}{BD} \qquad BI - \frac{N_1^{\,2}}{N_2} = 0$$

Plate 2 Result R2

$$\frac{N_2^{\,3}}{N_1^{\,2}} = 125$$

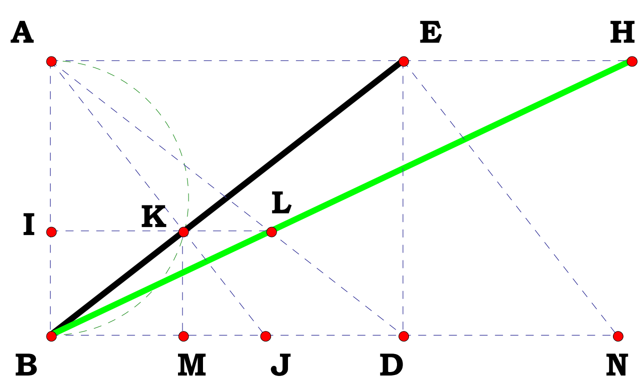


$N_1 \equiv 1$

$N_2 \equiv 5$

$AB := N_1 \quad DE := AB$

$AE := N_2 \quad BD := AE$



$$BJ := \frac{DE \cdot AB}{BD}$$

$DN := BJ$

$$BM := \frac{BD \cdot BJ}{BD + DN}$$

$$KM := \frac{DE \cdot BM}{BD}$$

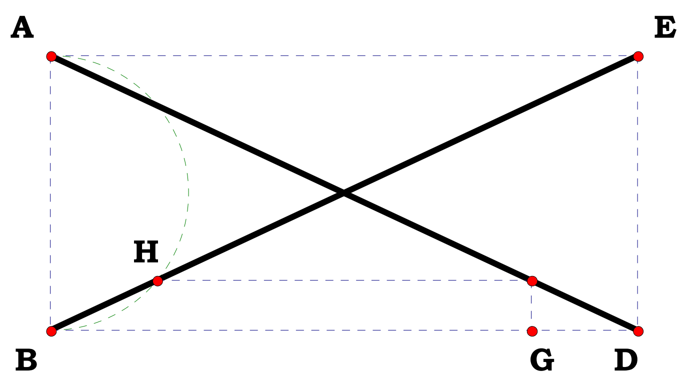
$BI := KM$

$$AI := AB - BI \quad IL := \frac{BD \cdot AI}{AB} \quad AH := \frac{IL \cdot AB}{BI}$$

$$AH - \frac{1}{N_1^{\,2}} \cdot N_2^{\,3} = 0$$

Plate 2 Result R2e1

$$\frac{N_2^{\,3}}{N_2^{\,2}+N_1^{\,2}} = 4.808$$

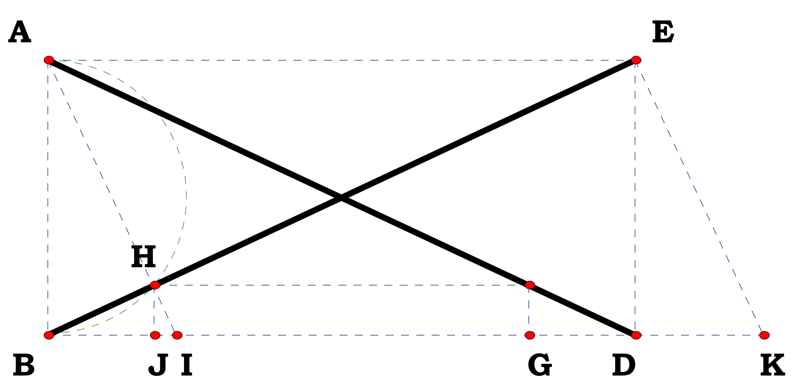


$N_1 \equiv 1$

$N_2 \equiv 5$

$AB := N_1 \quad DE := AB$

$AE := N_2 \quad BD := AE$



$$BI := \frac{DE \cdot AB}{BD}$$

$$BK := BD + BI$$

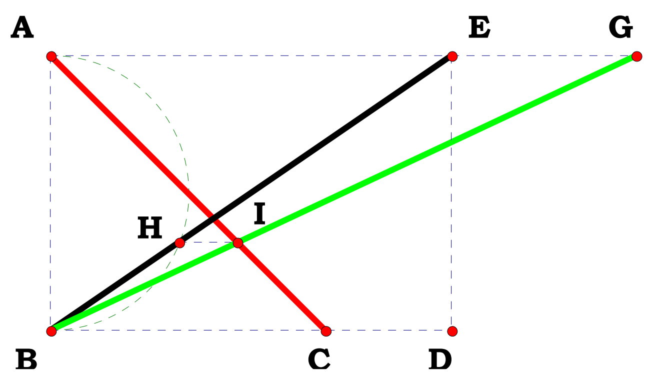
$$BJ := \frac{BD \cdot BI}{BK}$$

$DG := BJ \quad BG := BD - DG$

$$BG - \frac{N_2^{\,3}}{N_2^{\,2}+N_1^{\,2}} = 0$$

Plate 2 Result R3

$$\frac{N_2^{\,2}}{N_1} = 25$$



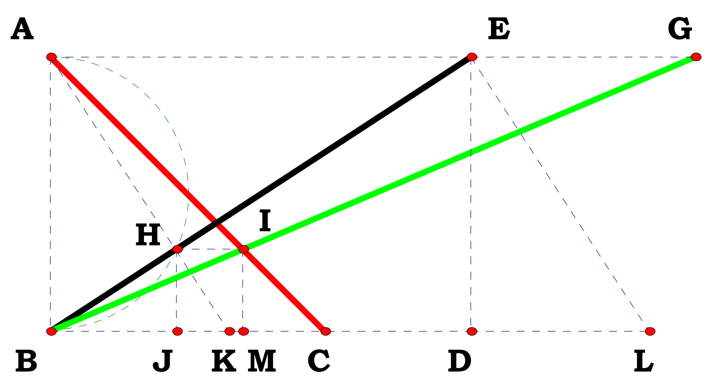
$N_1 \equiv 1$

$N_2 \equiv 5$

$AB := N_1 \quad DE := AB$

$BC := AB$

$AE := N_2 \quad BD := AE$



$$BK := \frac{DE \cdot AB}{BD}$$

$DL := BK$

$$BJ := \frac{BD \cdot BK}{BD + DL}$$

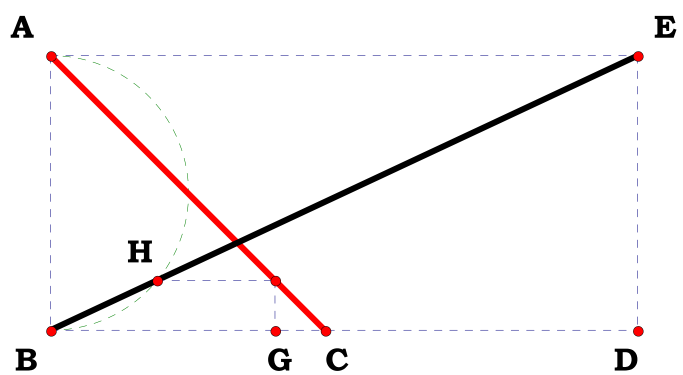
$$HJ := \frac{DE \cdot BJ}{BD}$$

$$IM := HJ \quad CM := IM \quad BM := BC - CM \quad AG := \frac{BM \cdot AB}{IM}$$

$$AG - \frac{N_2^{\,2}}{N_1} = 3.553 \times 10^{-15}$$

Plate 2 Result R3e1

$$\frac{N_1 \cdot N_2^{\,2}}{N_2^{\,2} + N_1^{\,2}} = 0.962$$



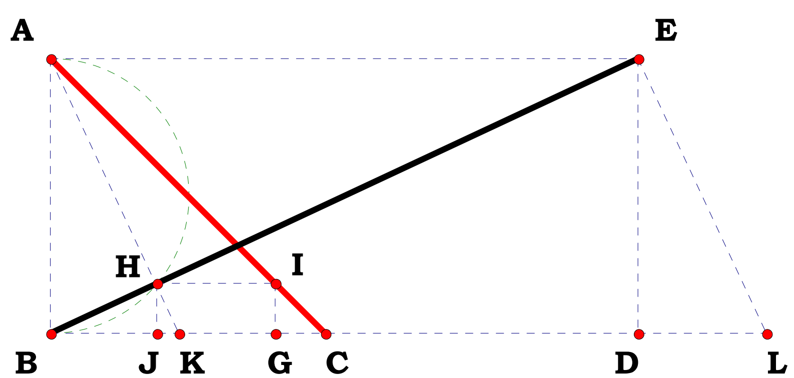
$N_1 \equiv 1$

$N_2 \equiv 5$

$AB := N_1 \quad BC := AB$

$DE := AB$

$AE := N_2 \quad BD := AE$



$$BK := \frac{DE \cdot AB}{BD}$$

$DL := BK$

$BL := BD + DL$

$$HJ := \frac{DE \cdot BK}{BL}$$

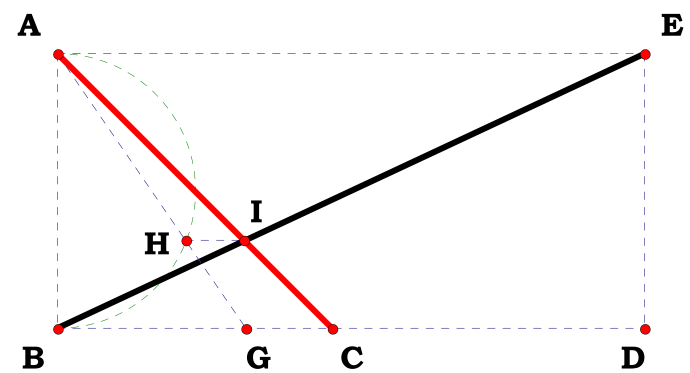
$IG := HJ \quad CG := IG$

$BG := BC - CG$

$$BG - N_1 \cdot \frac{N_2^{\,2}}{N_2^{\,2} + N_1^{\,2}} = 0$$

Plate 2 Result R4

$$\left(\frac{N_1^{\,3}}{N_2}\right)^{\frac{1}{2}} = 0.354$$

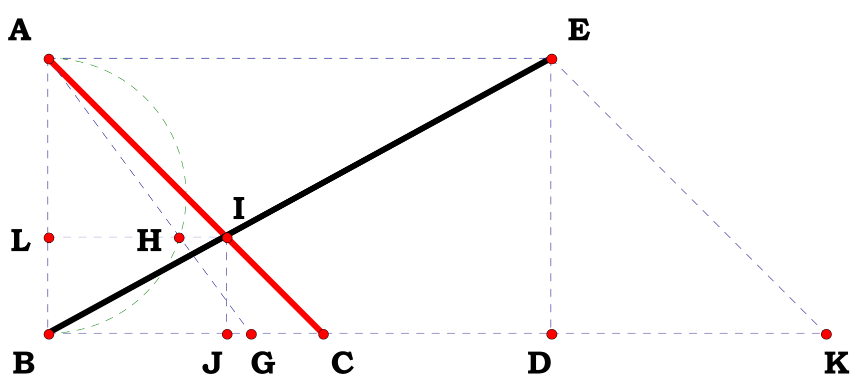


$N_1 \equiv 1$

$N_2 \equiv 8$

$AB := N_1 \quad BC := AB$

$AE := N_2 \quad BD := AE$



$DE := AB$

$DK := BC$

$BK := BD + DK$

$$IJ := \frac{DE \cdot BC}{BK}$$

$BL := IJ$

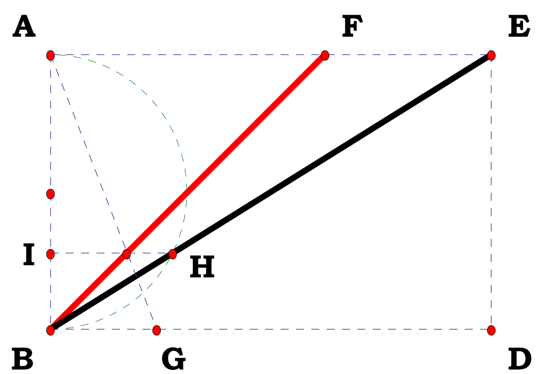
$AL := AB - BL$

$$HL := \sqrt{BL \cdot AL} \qquad BG := \frac{HL \cdot AB}{AL} \qquad BG = 0.354$$

$$BG - \frac{\left(\sqrt{N_1}\right)^3}{\sqrt{N_2}} = 0$$

Plate 2 Result R5

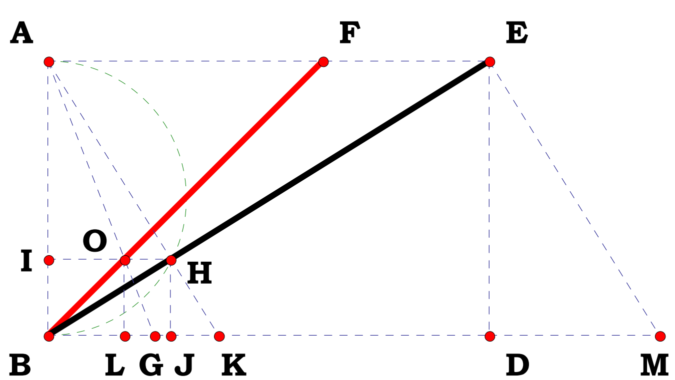
$$\frac{N_1^{\,3}}{N_2^{\,2}} = 0.04$$



$N_1 \equiv 1 \qquad N_2 \equiv 5$

$AB := N_1 \quad DE := AB$

$AE := N_2 \quad BD := AE$



$$BK := \frac{DE \cdot AB}{BD} \quad DM := BK$$

$$BM := BD + DM$$

$$HJ := \frac{DE \cdot BK}{BM} \quad BI := HJ$$

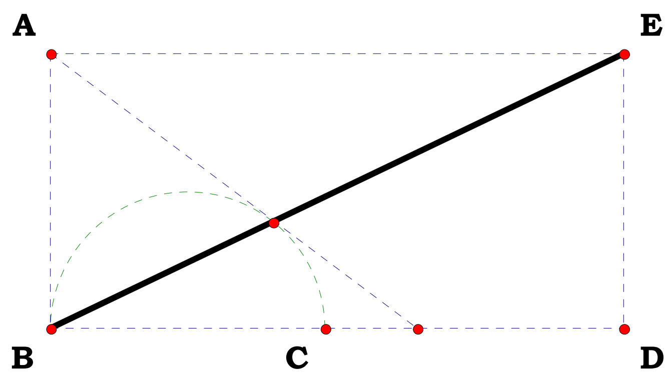
$$AI := AB - BI \quad IO := BI$$

$$BG := \frac{IO \cdot AB}{AI}$$

$$BG - \frac{1}{N_2^{\,2}} \cdot N_1^{\,3} = 0$$

Plate 3 Result R1

$$\frac{N_1 \cdot N_2^{\,2}}{N_1^{\,2} + N_2^{\,2} - N_1 \cdot N_2} = 1.19$$



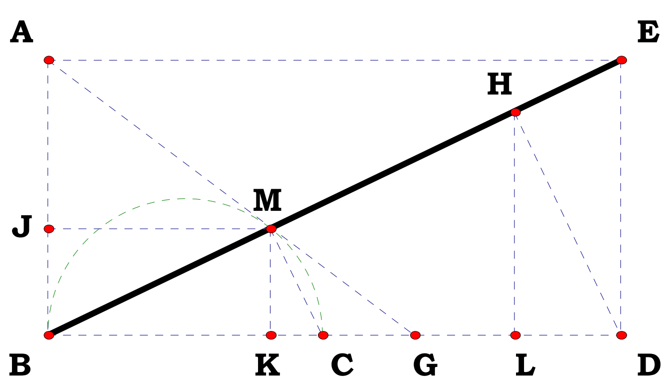
$N_1 \equiv 1$

$N_2 \equiv 5$

$AB := N_1 \quad BC := AB$

$DE := AB$

$AE := N_2 \quad BD := AE$



$$BE := \sqrt{DE^2 + BD^2}$$

$$BH := \frac{BD^2}{BE}$$

$$BL := \frac{BD \cdot BH}{BE}$$

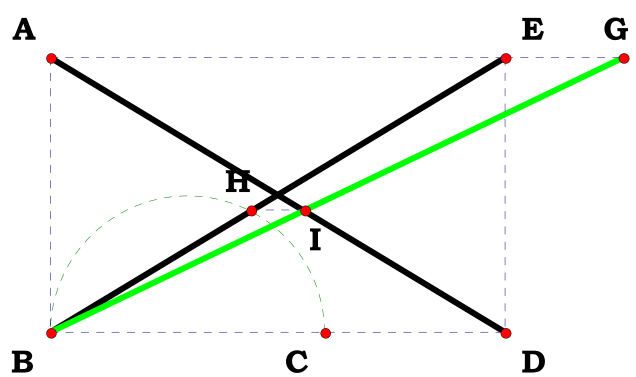
$$BK := \frac{BL \cdot BC}{BD}$$

$$JM := BK \quad BJ := \frac{DE \cdot JM}{BD} \quad AJ := AB - BJ \quad BG := \frac{JM \cdot AB}{AJ}$$

$$BG - N_1 \cdot \frac{N_2^{\,2}}{N_1^{\,2} + N_2^{\,2} - N_1 \cdot N_2} = 0$$

Plate 3 Result R2

$$\frac{N_2{}^2 + N_1{}^2 - N_2 \cdot N_1}{N_1} = 21$$



$N_1 \equiv 1$

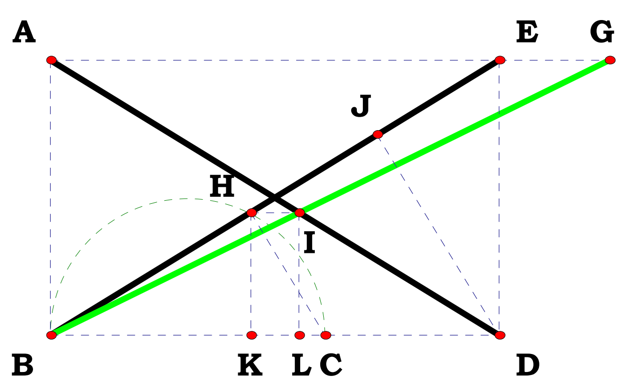
$N_2 \equiv 5$

$AB := N_1 \quad DE := AB$

$BC := AB$

$AE := N_2 \quad BD := AE$

$BE := \sqrt{BD^2 + DE^2}$



$EJ := \frac{DE^2}{BE} \quad CK := EJ \cdot \frac{BC}{BE}$

$HK := \frac{BD \cdot CK}{DE} \qquad IL := HK$

$DL := \frac{BD \cdot IL}{DE}$

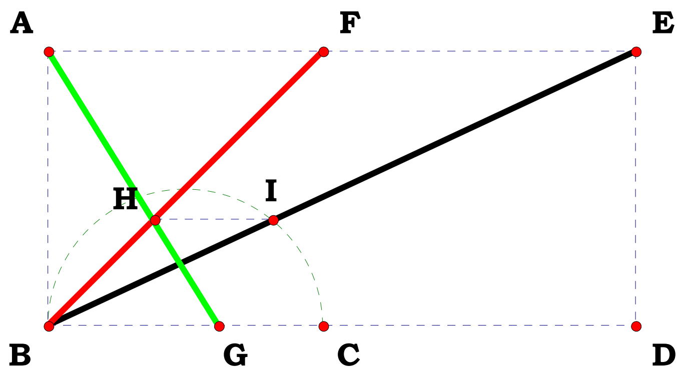
$BL := BD - DL$

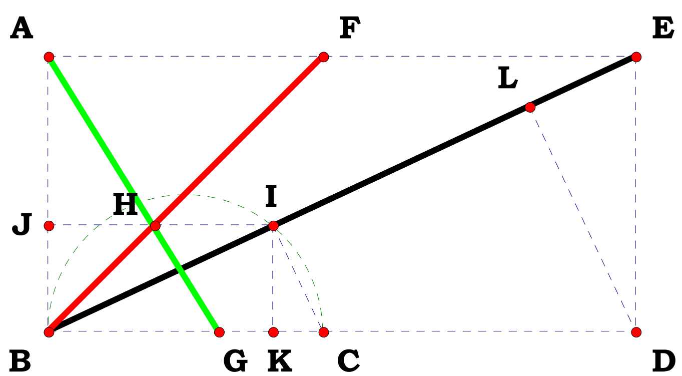
$AG := \frac{BL \cdot DE}{IL}$

$$AG - \frac{N_2{}^2 + N_1{}^2 - N_2 \cdot N_1}{N_1} = -3.553 \times 10^{-15}$$

Plate 3 Result R3

$$\frac{N_1{}^2 \cdot N_2}{N_2{}^2 + N_1{}^2 - N_1 \cdot N_2} = 0.238$$





$N_1 \equiv 1$

$N_2 \equiv 5$

$AB := N_1 \quad BC := AB$

$DE := AB$

$AE := N_2 \quad BD := AE$

$BE := \sqrt{BD^2 + DE^2}$

$$EL := \frac{DE^2}{BE}$$

$$CK := \frac{EL \cdot BC}{BE}$$

$BK := BC - CK$

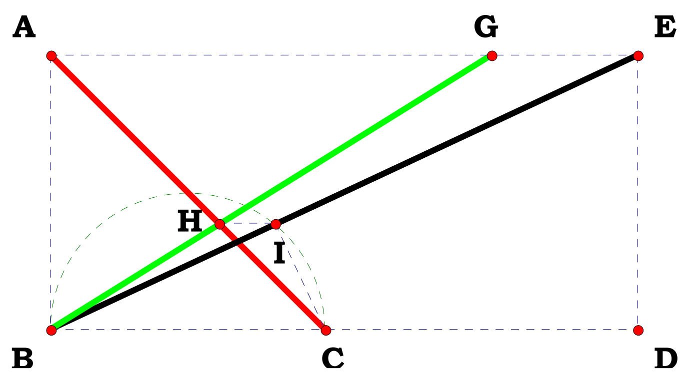
$$IK := \frac{DE \cdot BK}{BD}$$

$$BJ := IK \quad HJ := BJ \quad AJ := AB - BJ \quad BG := \frac{HJ \cdot AB}{AJ}$$

$$BG - N_2 \cdot \frac{N_1{}^2}{N_2{}^2 + N_1{}^2 - N_1 \cdot N_2} = 0$$

Plate 3 Result R4

$$\frac{N_2{}^2 + N_1{}^2 - N_2 \cdot N_1}{N_2} = 4.2$$



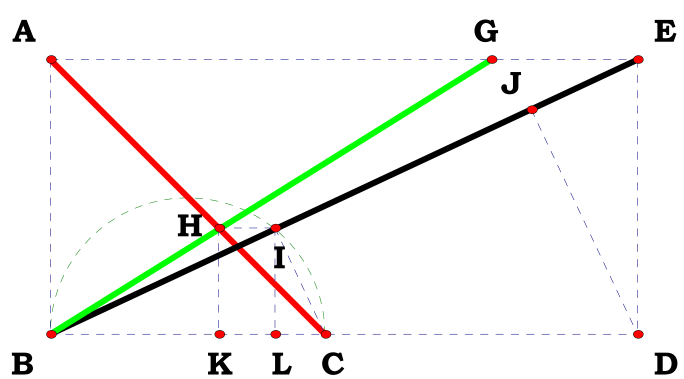
$N_1 \equiv 1$

$N_2 \equiv 5$

$AB := N_1 \quad BC := AB$

$DE := AB$

$AE := N_2 \quad BD := AE$



$$BE := \sqrt{BD^2 + DE^2}$$

$$BJ := \frac{BD^2}{BE}$$

$$DJ := \frac{DE \cdot BJ}{BD}$$

$$IL := \frac{DJ \cdot BC}{BE} \qquad HK := IL \quad CK := HK \quad BK := BC - CK$$

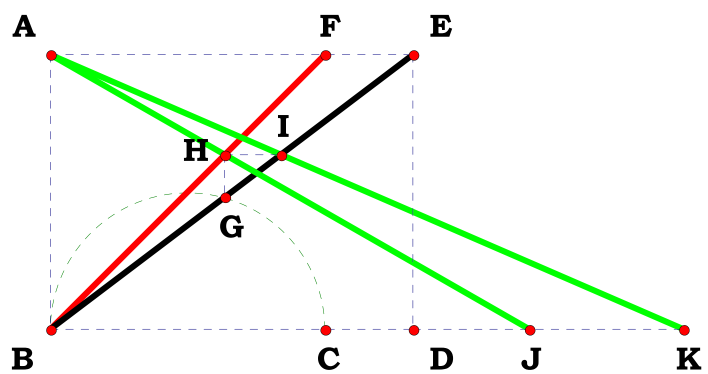
$$AG := \frac{BK \cdot DE}{HK}$$

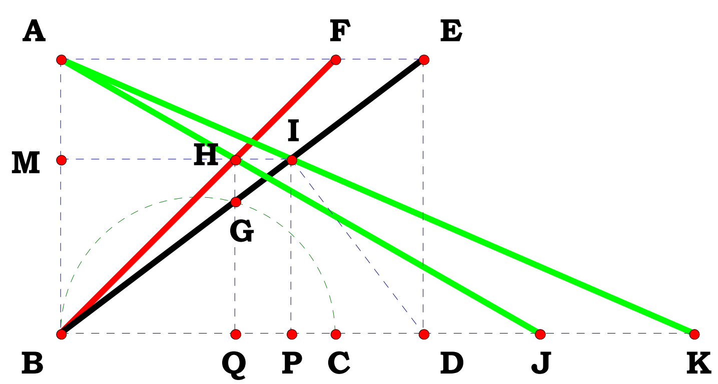
$$AG - \frac{N_2{}^2 + N_1{}^2 - N_2 \cdot N_1}{N_2} = 0$$

Plate 3 Result R5 and R6

$$\frac{N_2{}^2}{N_1} = 25$$

$$\frac{N_2{}^3}{N_1{}^2} = 125$$





$N_1 \equiv 1$

$N_2 \equiv 5$

$AB := N_1 \quad BC := AB$

$DE := AB$

$AE := N_2 \quad BD := AE$

$$BE := \sqrt{BD^2 + DE^2}$$

$$BI := \frac{BD^2}{BE}$$

$$IP := \frac{DE \cdot BI}{BE} \quad BM := IP$$

$AM := AB - BM$

$$BP := \frac{BD \cdot IP}{DE}$$

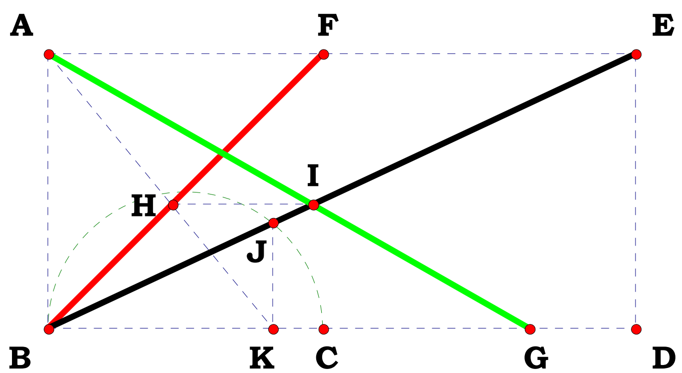
$$IM := BP \quad BK := \frac{IM \cdot DE}{AM} \qquad BK - \frac{N_2{}^3}{N_1{}^2} = 4.69 \times 10^{-13}$$

$$HQ := IP \quad HM := HQ \quad BJ := \frac{HM \cdot AB}{AM} \qquad BJ - \frac{N_2{}^2}{N_1} = 9.237 \times 10^{-14}$$

Plate 3 Result R7 and R8

$$\frac{N_2^{\,3}}{N_2^{\,2}+N_1^{\,2}} = 4.808$$

$$\frac{N_1 \cdot N_2^{\,2}}{N_2^{\,2}+N_1^{\,2}} = 0.962$$



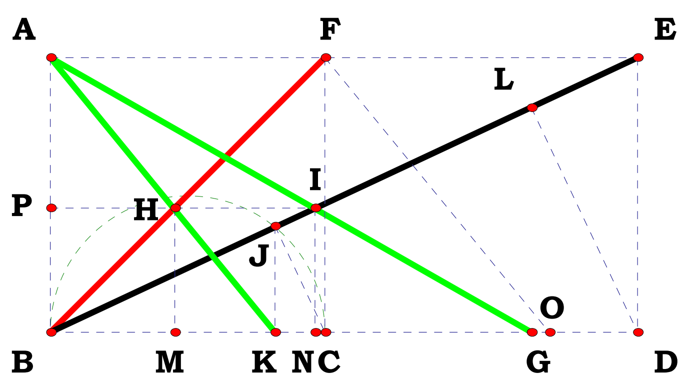
$N_1 \equiv 1$

$N_2 \equiv 5$

$AB := N_1 \quad BC := AB$

$DE := AB \quad FC := AB$

$AE := N_2 \quad BD := AE$



$BE := \sqrt{BD^2 + DE^2}$

$BL := \dfrac{BD^2}{BE}$

$BK := \dfrac{BL \cdot BC}{BE}$

$CO := BK \quad BO := BC + CO$

$HM := \dfrac{FC \cdot BK}{BO} \quad BP := HM \quad AP := AB - BP \quad IN := BP \quad BN := \dfrac{BD \cdot IN}{DE}$

$PI := BN \quad BG := \dfrac{PI \cdot AB}{AP}$

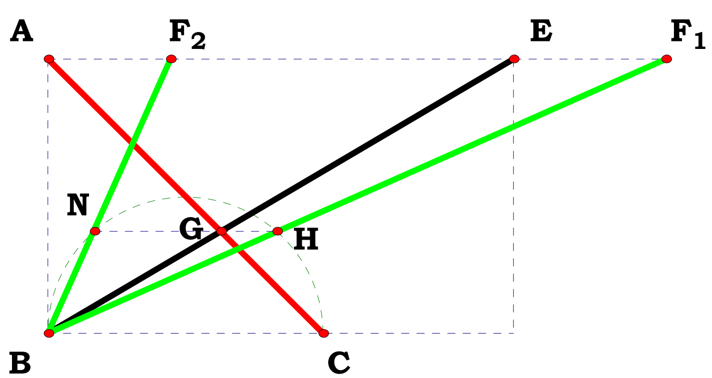
$$BK - \frac{N_1 \cdot N_2^{\,2}}{N_2^{\,2}+N_1^{\,2}} = 0 \qquad BG - \frac{N_2^{\,3}}{N_2^{\,2}+N_1^{\,2}} = 0$$

Plate 3 Result R10

Not finished.

$$\frac{N_2 + N_1 + \left[\left(N_2 + 3 \cdot N_1\right) \cdot \left(N_2 - N_1\right)\right]^{\frac{1}{2}}}{2} = 6.854$$

$$\frac{N_2 + N_1 - \left[\left(N_2 + 3 \cdot N_1\right) \cdot \left(N_2 - N_1\right)\right]^{\frac{1}{2}}}{2} = 0.146$$



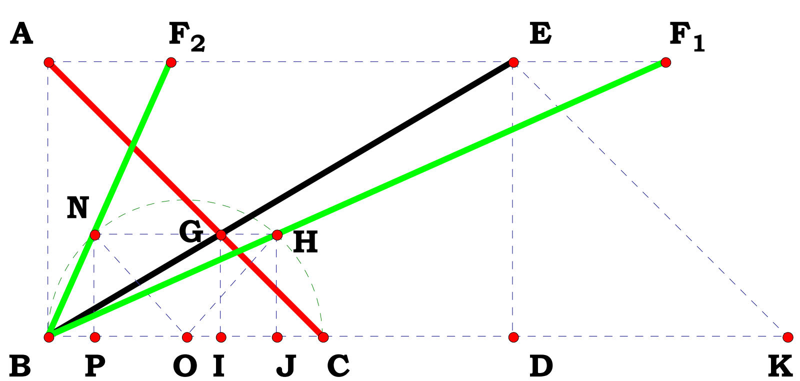
$N_1 \equiv 1$

$N_2 \equiv 6$

$AB := N_1 \quad BC := AB$

$DE := AB$

$AE := N_2 \quad BD := AE$



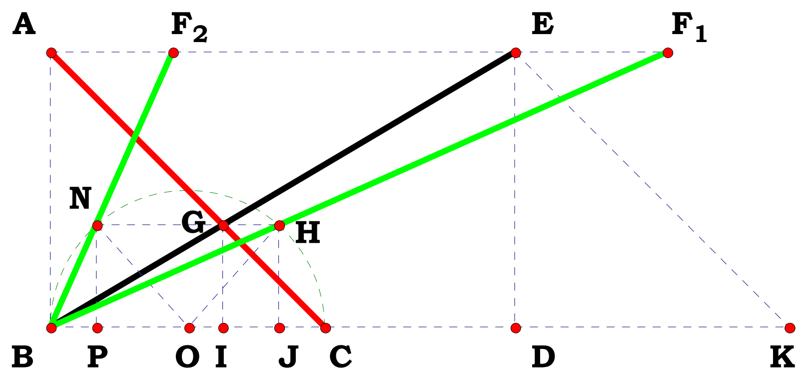
$DK := AB$

$BK := BD + DK$

$GI := \frac{DE \cdot BC}{BK}$

$HJ := GI$

$HO := \frac{BC}{2}$



$$JO := \sqrt{HO^2 - HJ^2}$$

$$CJ := HO - JO$$

$$BJ := BC - CJ$$

$$AF_1 := \frac{BJ \cdot DE}{HJ}$$

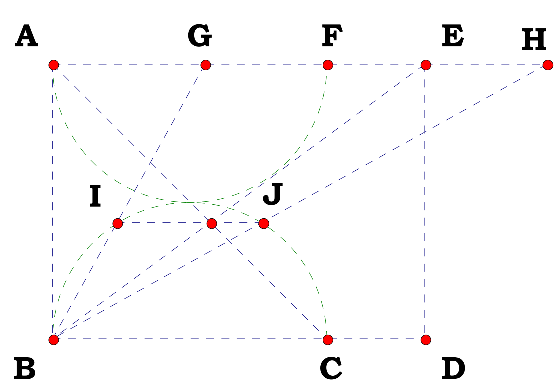
$$AF_1 = 6.854$$

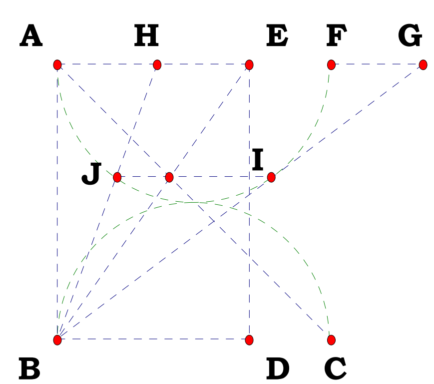
$$AF_1 - \frac{N_2 + N_1 + \left[\left(N_2 + 3 \cdot N_1\right) \cdot \left(N_2 - N_1\right)\right]^{\frac{1}{2}}}{2} = 0$$

$BP := CJ \quad NP := GI \quad AF_2 := \dfrac{BP \cdot DE}{NP} \qquad AF_2 = 0.146$

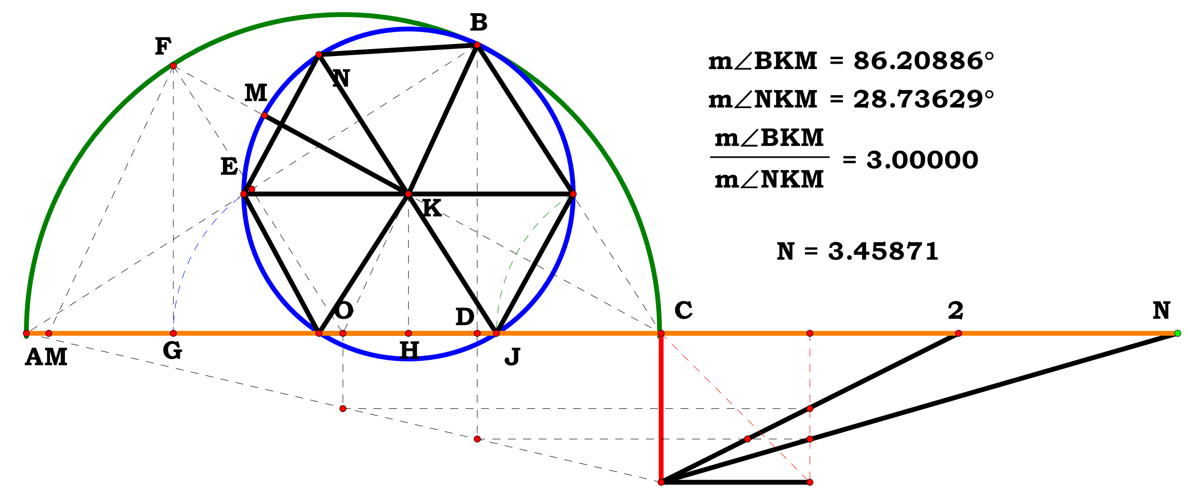
$$AF_2 - \frac{N_2 + N_1 - \left[\left(N_2 + 3 \cdot N_1\right) \cdot \left(N_2 - N_1\right)\right]^{\frac{1}{2}}}{2} = 0$$

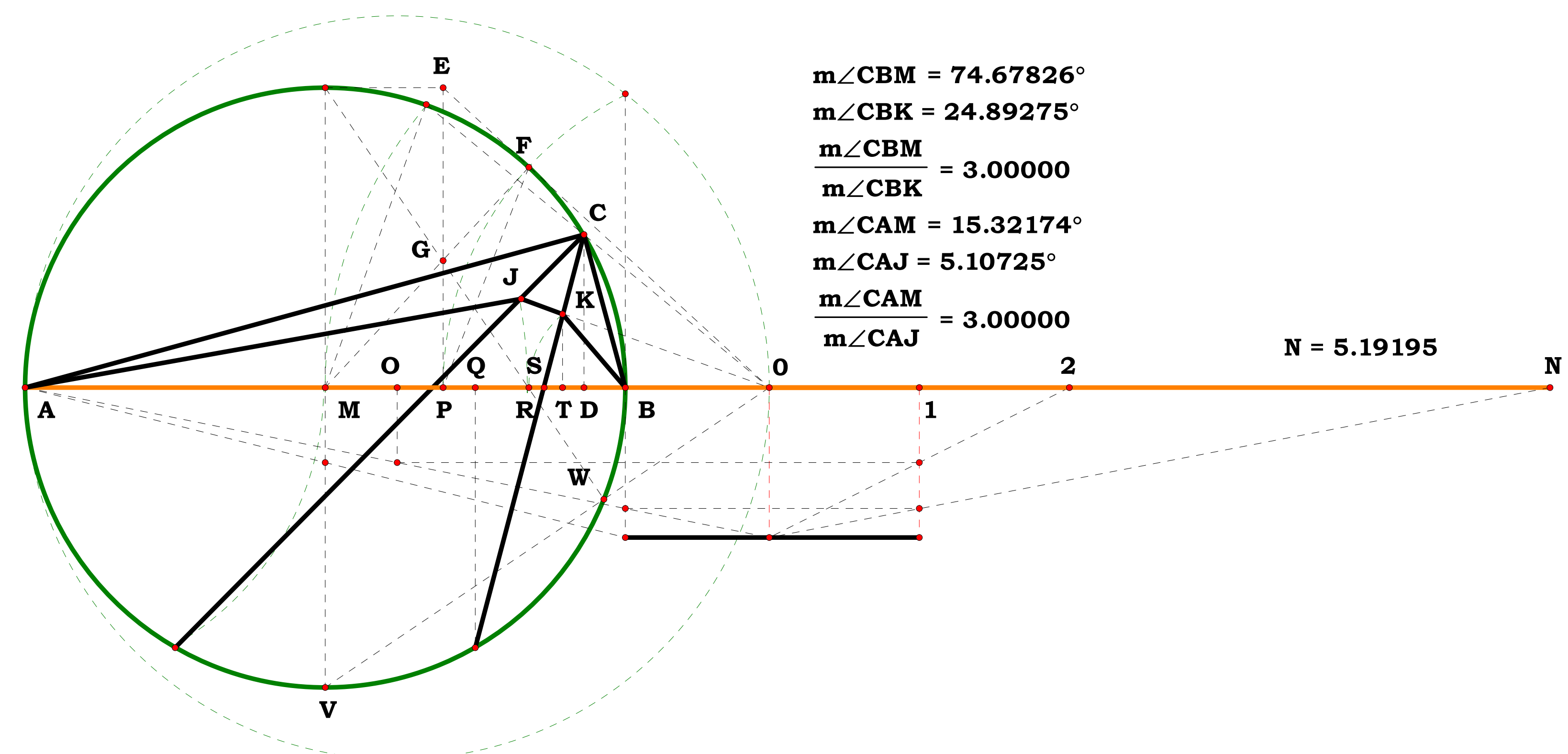
As written, does not account for the full range. N1 must remain less than N2.





Looking for Angels.





Looking for Angels.

3/5/2018

Have you ever thought, and perhaps have committed it yourself, that an angle is just a typo for an angel? Or even the reverse? They both have wings, right? Now, it may be of some concern, that one knows where they are going, but the other just goes *duh*. That is very disturbing. One can have a ball on the head of a pin, complete with orchestra and lights, while the other gets lost looking for a pencil because it cannot even find the light switch.

I am want to leave *The Universal Language* where it is at present. I am not one who actually enjoys the minutia of trying to say something, or set it down, especially when I am antsy to get on my way to explore something else and also since I am, myself, so unfamiliar with actually talking with anyone. I think, in regard to BAM, I way over did the minutia to begin with. However, the time I spent on that minutia certainly put my thoughts into order, like chicken baking in the oven. But now, I want to go back to a project I put on the back burner years ago. I can now attack it from a sounder base:—The Angle.

Now I have examples derived from my own work. The information which I have accrued, like most of everything else, I have not found in any work. The hair brained use of Trigonometry, in my opinion, only leaves one as they started, just really stupid. To me, running off and creating bull-shit, when one has not even examined what they do have, is not the endeavor of someone who is wholly cognizant of themselves. Who, in their right mind, writes theories about the Universe, when they start from a foundation, which, their own education tells them is not even sound? Anyone, taking a grammar class, should at least, if they say nothing to the teacher, think within, *What the Fuck*? Enough of the rant.

I am going to spend some time, putting into a starting document, what I have learned about angles. This time, however, I am fully aware that what I am doing, is finding a way by which one correctly proportions a unit, itself, in relation to itself. I just have a suspicion that if one wants to comprehend dimensional progression, in regard to a unit, then that is where one starts. And, I have got up and running, a working pdf of Plato in the Nude, which can drone on in my ear as I work, when I am not watching Marvel cinema. Got to keep up with the comics.

I started my study of geometry as I was approaching my 40's, never having it presented to me in public education. Now, I am approaching my 70's. So, I would not expect much.

I will start off this project with a pdf of the project left undone from 2005, when I called the project, Three Pieces of Paper. At the time, I did not pay much attention to BAM, because I actually took it for granted that the process had to have been known. How could it not? But a thought kept nagging at me, so I went searching on the internet, and then it dawned on me, it was not known, so I had to leave the work off and work it out. What was on the internet was just so undeveloped and primitive.

So, I am wandering off, again, onto another exploit…

Chapter 1.

The Unit.

3/8/2018

When I first started drawing, I started with the desire just to try and learn a little geometry. In terms of the word geometry, I was a clean slate, I never had it in school and I was in my late 30's when decided to set off on my little learning adventure.

It took about a dozen years, maybe because I was not actually thinking about it, to realize that a circle was not just a circle nor a line just a line. It took a lot longer to realize that the mind processes all information based on only one concept of a unit:—a unit is just a synonym for a thing.

Now, the phrase, for it certainly is a phrase, does not seem to mean much until you start looking into your own mind. Slowly, you start to realize that it means everything. Everything we think and do, when our mind is functioning, is the results of complete induction and deduction of a unit, or as Plato would say, *Just one thing*.

Another thing this means is just this. If this fact is not known or understood, then one does not actually know any thing at all. It means that we are proto-linguistic. As such, it also means we are a beast, docile or not. Language separates man from animals. That distinct separation is impossible until our mind is functioning by complete induction and deduction of a unit, a standard concept of a thing. The evolutionary umbilical cord only becomes severed when our behavior is determined by a mind doing its own work.

A lot of people do not exactly know what it means *to do one's own work*. I had some idea, that is why while I was at work, doing my job, I sometimes got into trouble with both the company and the union. I was

an over-achiever and for a very good reason. After I had done more than production quota's I would take a break and try to study. Now the company wanted more, never satisfied, and the union threatened to actually kick my ass if I did not slow down. For some strange reason, which I have not figured out to this day, both of them suffered the same sociopathic behavior, each of them thought that I was governed by them. How is it possible, in a country that tosses the word *freedom* around to be wholly subjected to a slave psychology, a slave mentality? I have absolutely no idea. Although I did eventually earn my pension by my own terms, and I did earn some respect by both the company and the union, neither were happy about it. A social working life is something like standing in the rain with occasional hail:—neither the rain, nor the hail will ever remember you. So the company, setting production quota's were claiming, by their behavior that I owed them more than they said was a fair day's work, and the union claiming that job security means not doing one's own work. One telling you it is okay to beat the horse to death, and the other claiming you never have to leave the barn. Wonderful, just freaking wonderful, because both of them are claiming that I am the problem. Seems to be my life's story.

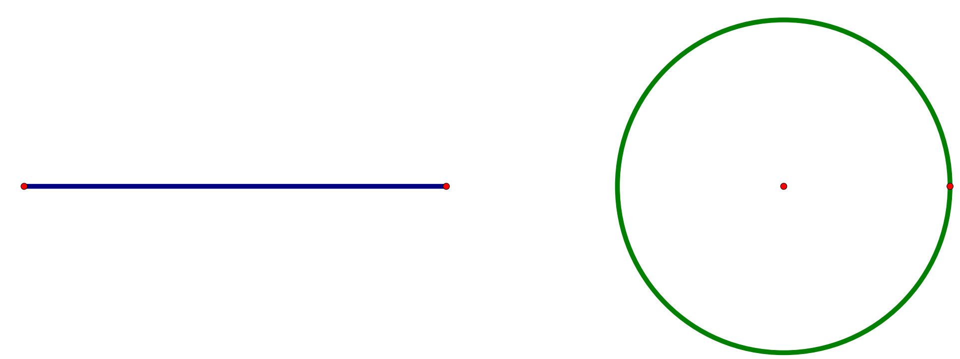
I have a problem with authority. Even when I was going through a phase of being able to see things which actually came about, I found it curious, examined it, but my attitude was, however it was happening, I did not cause it, so why would I be interested? If I do not know a thing, then I either had to learn it, understand it if I could, or move on to something I could understand. Simple as that. I likened the experience to people who bitch about rich people claiming if they had that person's money that they would do thing's differently. Really? ever think about starting at the start, by earning the right to say that, by earning the money? I actually felt sorry for people who chased after the visions, all of their life wondering why they could not master it, when it was clear,

should have been clear, it was not by their own ability. The future does not exist, thinking that it does is a brain dead tense error. I did not know where the visions were coming from, it did not excite me, and I was certain that I did not know, the only question to ask, just like popular media, why in the hell do they, or what ever it was, want my time? My time is the only thing I have. It is a blind bank account of which you never know when you have over drawn that account. You never will.

Except I did, and that event sent me into a state I have never really recovered from. And I still do not know why. What in the hell does anyone want with my time, only now, is it my time? My account ran out a long time ago, yet here I am. Why? My whole situation is involved with true power I cannot understand and is wholly out of my ability to understand.

So, I have to take the only road, the long road to understanding. I have to start learning the unit.

In the grammar of geometry, we have two distinct tools. The straightedge and the compass and they produce a results, with pencil, pen, crayon, chalk, scribe, etc., like these:—



And by recursive use you draw; draw is just a synonym for symbolic expressions in that grammar. Eventually you learn that the segment is just one thing, a unit, and the compass an expression of the universe of discourse. That tool, the compass, is all you have to do the math, or speak the language. Although they are constructed, each with a tool, the

results, by appearance, differs drastically between them. The circle is not a line. It is a conceptual abstraction imposed upon the only word possible, one. By complete induction and deduction, all you are doing is counting and it does not matter if you are counting days, or the color of someone's eyes.

Chapter 2.

The Ball Game.

3/8/2018

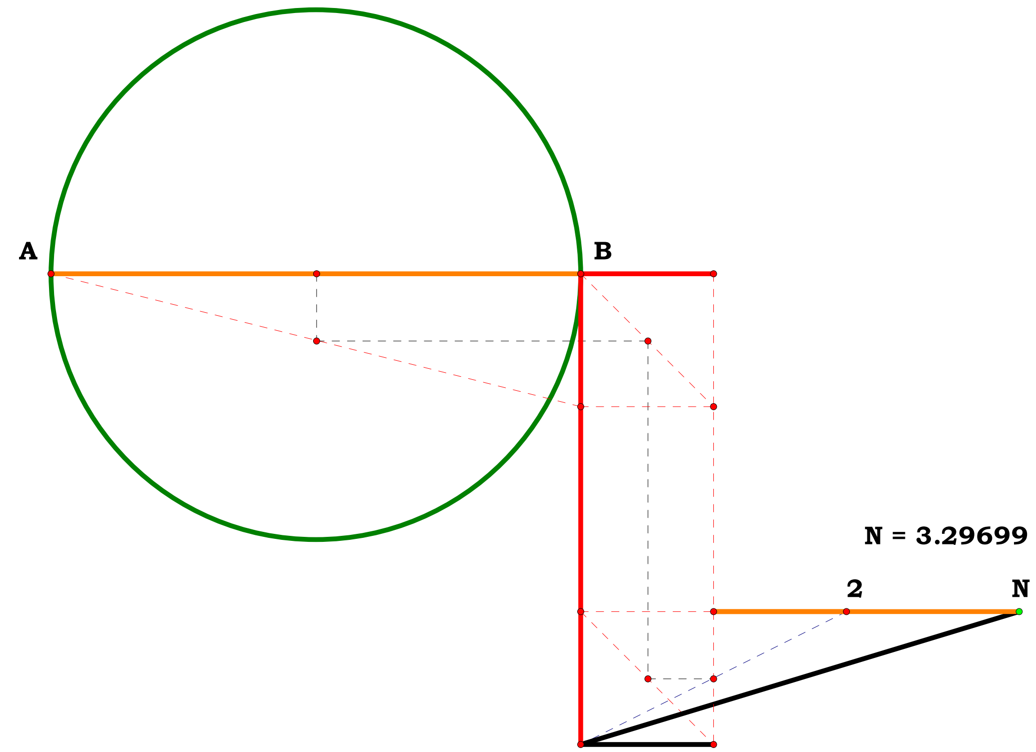
In baseball, it only takes three misses at bat to set you back down in the dugout. It is a life of second and third chances, which makes it an optimistic game, unlike evolution.

Before my trek into geometry and later, the study of Plato, I ran into another problem. I had an answer, in visual metaphor again, to a question I asked. For three days, I tried to figure out what C.M. meant. The best I could do is Common Market, which is actually what it does mean. Being in the format of C.M. means that it is a class with many members, that is what initials are. Another word for initials is acronym. The sign I was given in the lucid dream, is simply loaded with meaning, so that no matter how you look at it, if you are thinking, the results is always the same. When I have given up on trying to second guess the initials, I resorted to using a dictionary I found in the shop drawer. On the top of that list was, Congregation of the Mission. I knew less about this than the Common Market, however, I had a greater aversion to it than the other. I am not in the least fond of religion, not as practiced today, not as taught today. Therefore, I naturally had an aversion to the Bible in terms of religion.

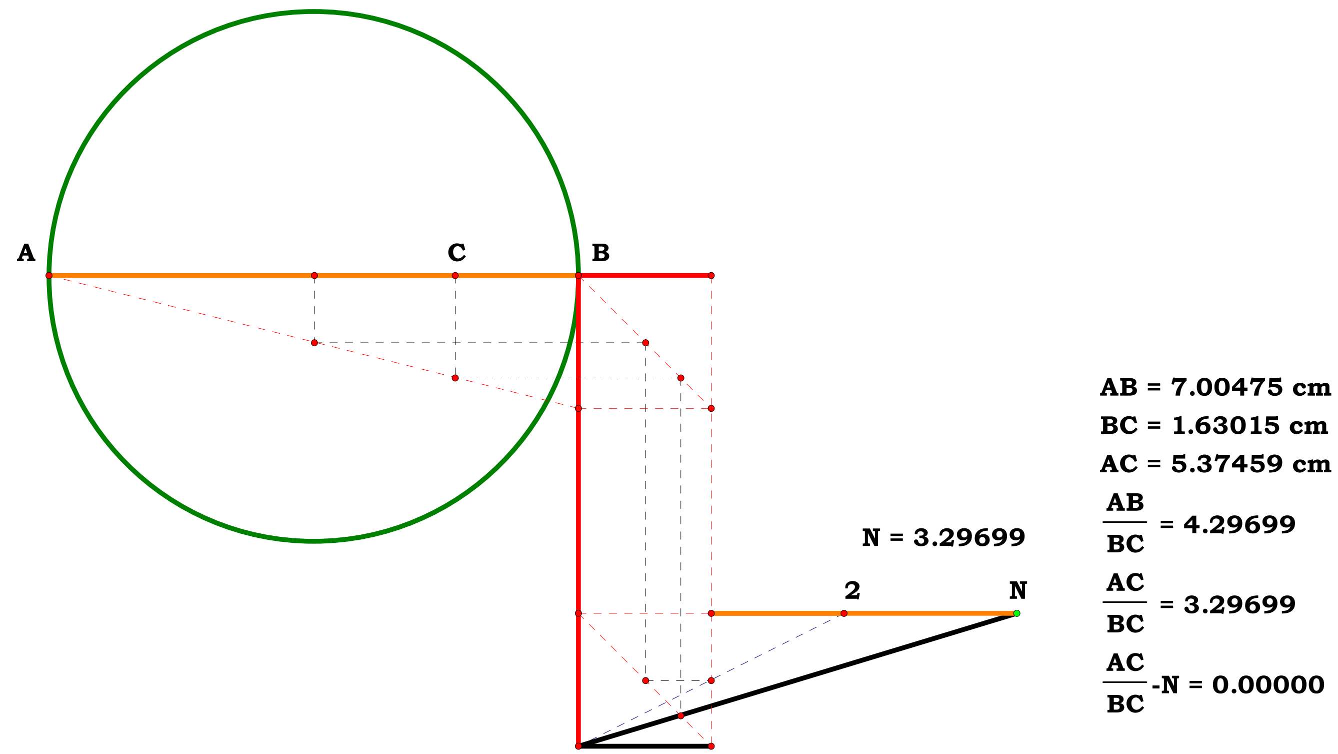
So, after I had my fit and by seeing that the words of the Book were being used a lot differently than I was use to seeing in a book, things started getting weirder than they already were in my life.

When all was said and done, a very long circumlocution, much worse than an Platonic Dialog, it brings one back to the unit by which psychology is determined, even the name of the beast 666, resolves to a biological fact, what determines what we are is simply by our psychology as determined by our ability to employ the unit in thought. Therefore, let

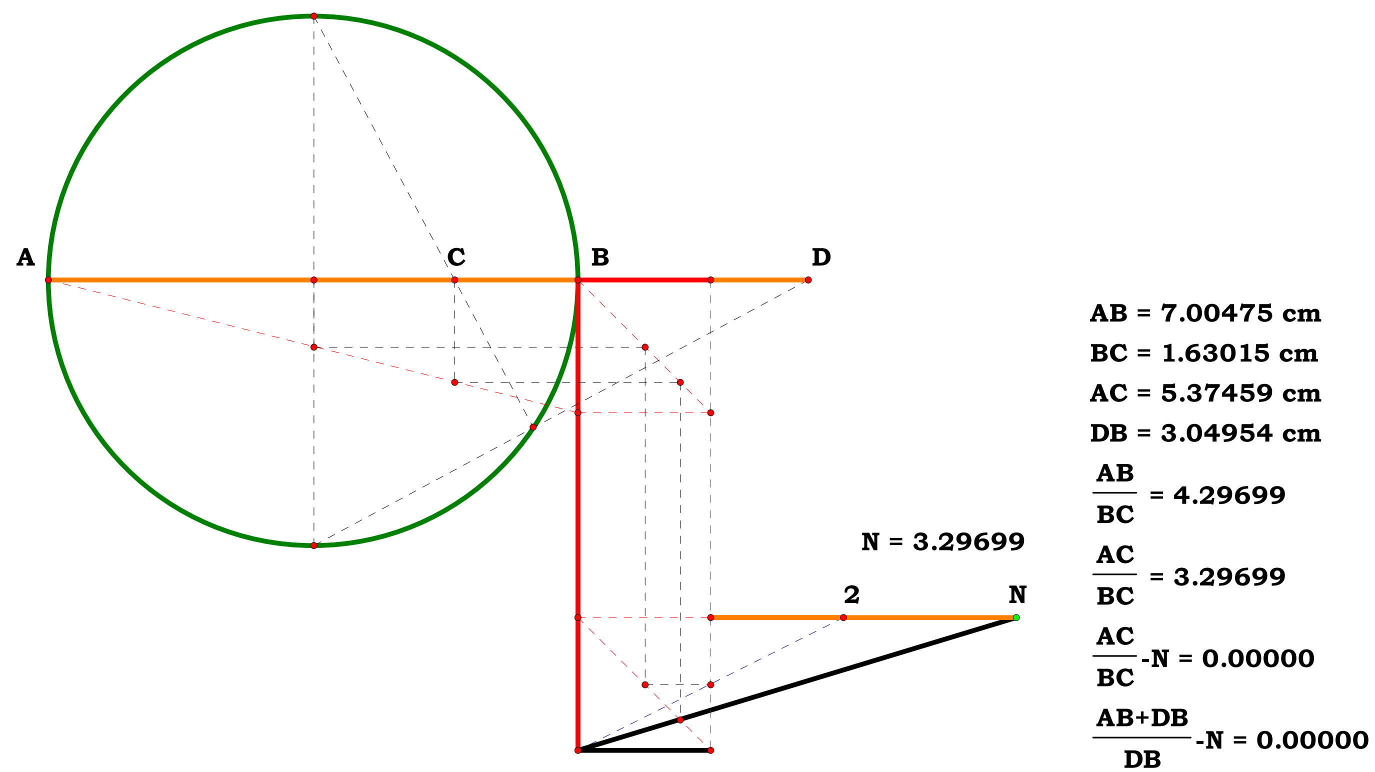
us pre-suppose that you have done your homework, and that you have studied the *Delian Quest* and *Basic Analog Mathematics* and let us put together a figure for doing complete induction and deduction with a unit using just a straightedge and compass. It should look something like the following:—



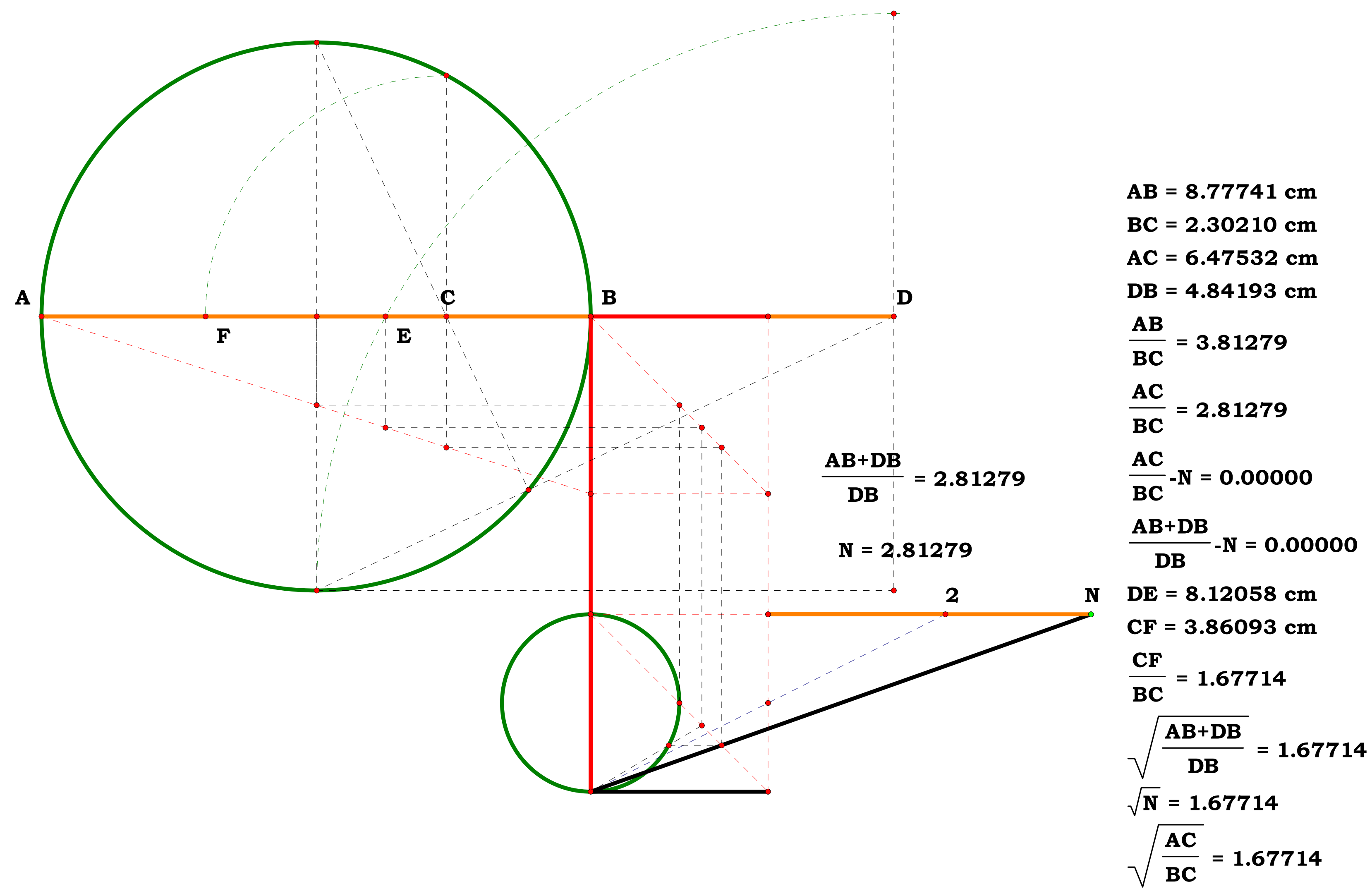
AB can be any size you please: It does not matter in the least. N, however, is going to be constructed by which one assigns an ordered naming convention to what ever names we are going to assign to AB. This way, we can learn to see how the very same unit of discourse is expressed no matter how we recursively apply it, by induction or deduction. You may, like everything else, just look at the figure and draw a blank. Let us first examine how N is expressed inductively and deductively.



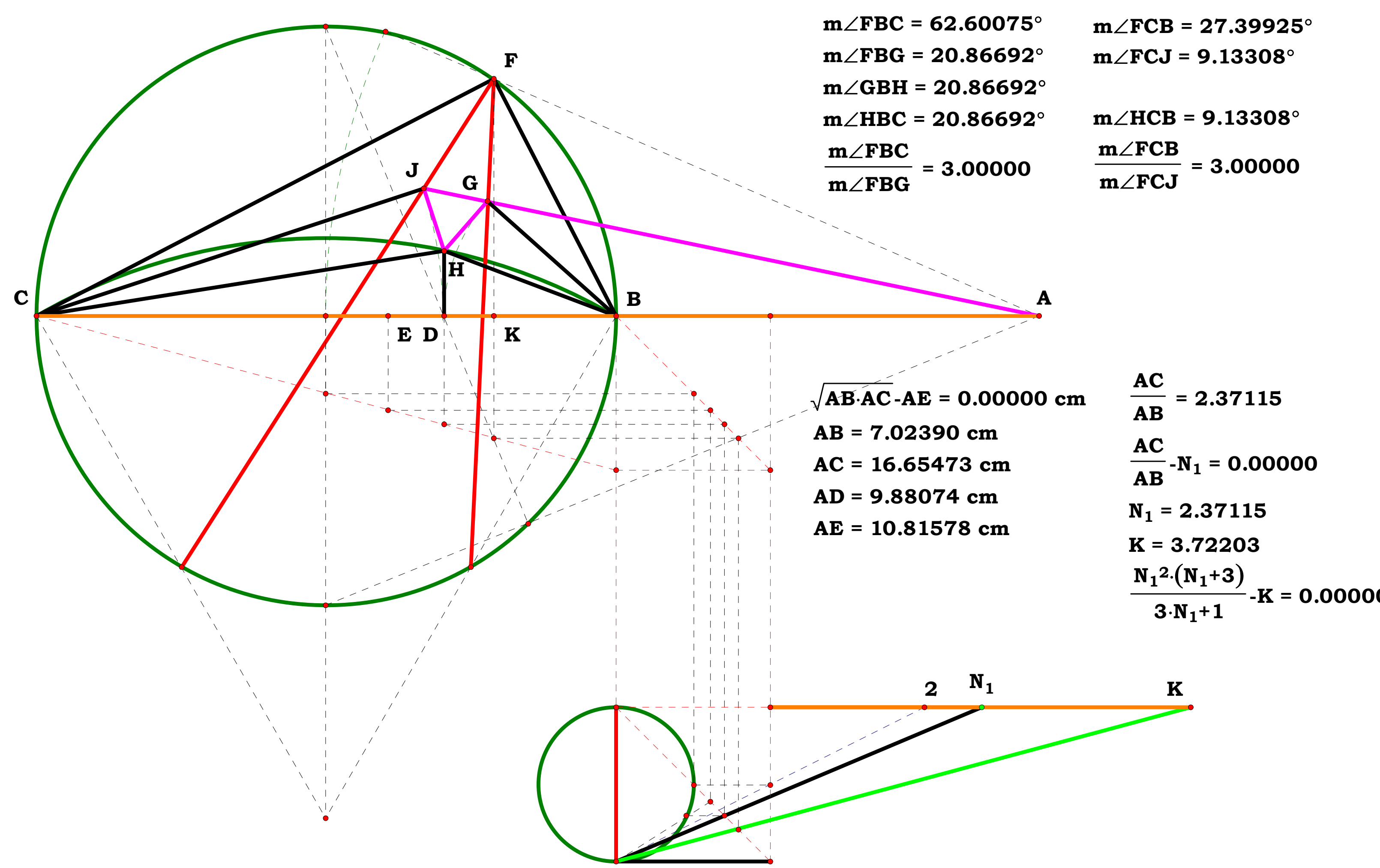
Examining the measurements of AB, BC, AC, with any means we desire, we noting a relationship to N. We have duplicated N, or I should say, N is a duplication of what is given in the figure AB. We have simply divided the unit. What if we want to multiply it instead?



We can express a unit by recursion in either direction, inductively or deductively. We also have now, three different ways of taking the square root of the composite figure for all three.



I suppose all of this is very interesting, however, what this is all leading to is the projection to point D and what it has to do with angle trisection. In other words, it is directly related to it. So, what I pointed out somewhere else, just a short time ago, that the Pythagorean Theorem was by no means completed by Pythagoras or a long history of angle enthusiast, angle trisection is itself directly related, very simply, to the unit as the following figure denotes, and which I put into the Delian Quest a long time ago.



As one can see, the trisection of any angle is simply the results of an algebraic equation; after all, the circle is the universe of discourse for a simple unit. I make plenty of mistakes to be sure, that is why I rely on programs a bit better than paper and pencil.

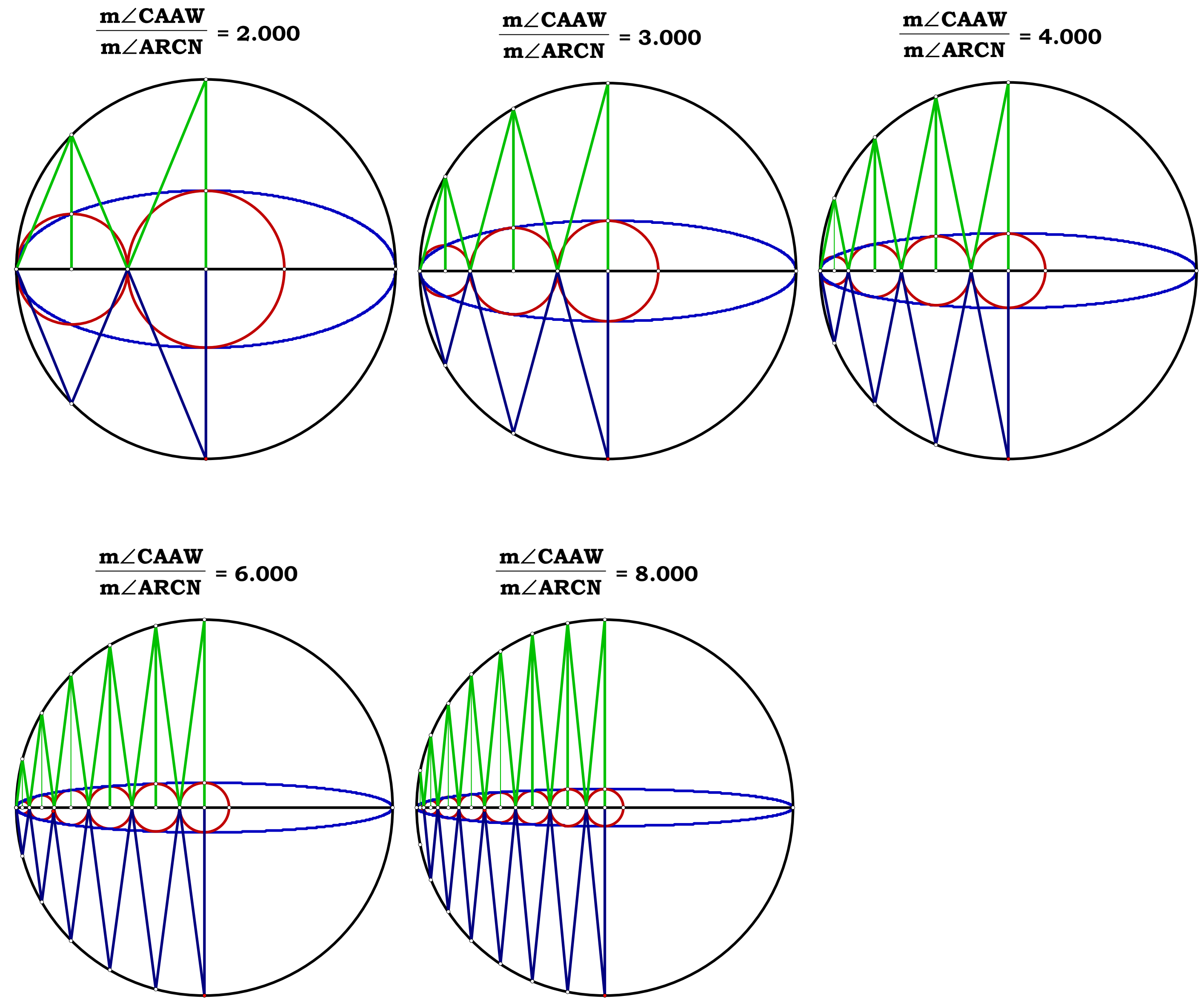
Anyway, three strikes and a hit on each one. Now, that is batting 1,000.

At any rate, I started the project called Three Pieces of Paper a long time ago, but it turned out there weren't much to put in it. Now the project Eloi, which is composed of a number of ways to solve for an ellipse was more fruitful. One of the first ones I took seriously was used to solve the Delian Problem. It too is an old project.

So, I will wrap this up with some plates on Archimedean Paper Trisector, which I decided, a while ago, that it should be completed too, but not by trying to do this with a piece of paper sliding around a circle. Why invent ordered naming conventions when you cannot use them? That is a lot like working to have your car kept in a locked garage. Myself, I can no longer even afford to drive one.

Conclusion

And so, as every circle tells you, straight on, an angle is a geometric progression, starting from a right angle, after all, an ellipse is an ellipse.



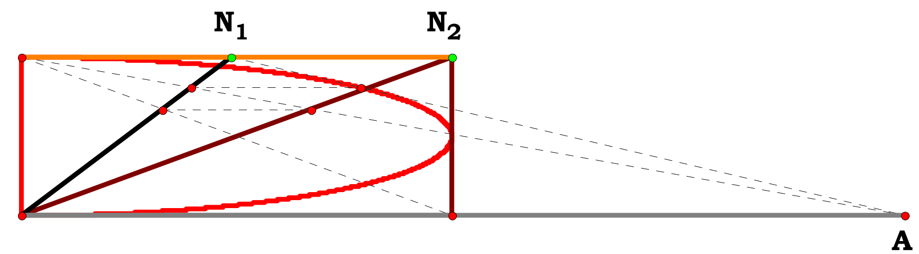
To claim that you cannot do this with a straightedge and compass is certainly an odd thing to say:—Every time your working with an ellipse, your dividing angles, what do you think complete induction and deduction means anyway?

$AB := 1$

$N_1 := 3.31672$

$N_2 := 2.53931$

From any point N_1 draw the tangent to the ellipse N_2. Or given the square N_2 divide it by N_1.

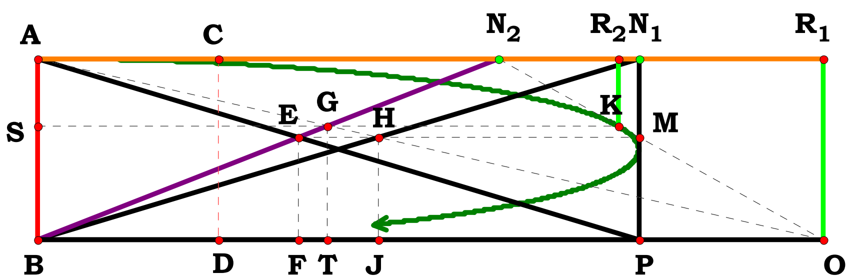


$N_1 = 1.32088$

$N_2 = 2.71076$ $\quad \dfrac{N_2^2}{N_1} - A = 0.00000$

$A = 5.56312$

Although I wrote this up in The Curve of the Equation, let me do it again, from a different starting point, pointing out other relationships. Not to mention, simplified and that I will make N_1 the ellipse.



$N_1 = 3.31672$

$N_2 = 2.53931$

$R_1 = 4.33214$

$R_2 = 3.20184$

One can see that there is a number of pathways, starting from N_1 by which to construct the figure and it is independent of any second variable. For example, I can use the operational tail of N_1 and take any point H on it. From H, I can go to either M or E. Or I can take N_1 and any N_2 and find everything, which is what I will be doing here. Each path one takes will, naturally, produce a both a logical and an analogical path to the same conclusion.

$$BF := \frac{N_1 \cdot N_2}{N_1 + N_2} \qquad EF := \frac{BF}{N_2} \qquad BJ := N_1 \cdot EF \qquad BO := \frac{BJ}{1 - EF} \qquad R_1 := BO$$

$$BT := \frac{BO \cdot N_2}{BO + N_2} \qquad GT := \frac{BT}{N_2} \qquad GK := BO \cdot (1 - GT) \qquad SK := GK + BT \qquad R_2 := SK$$

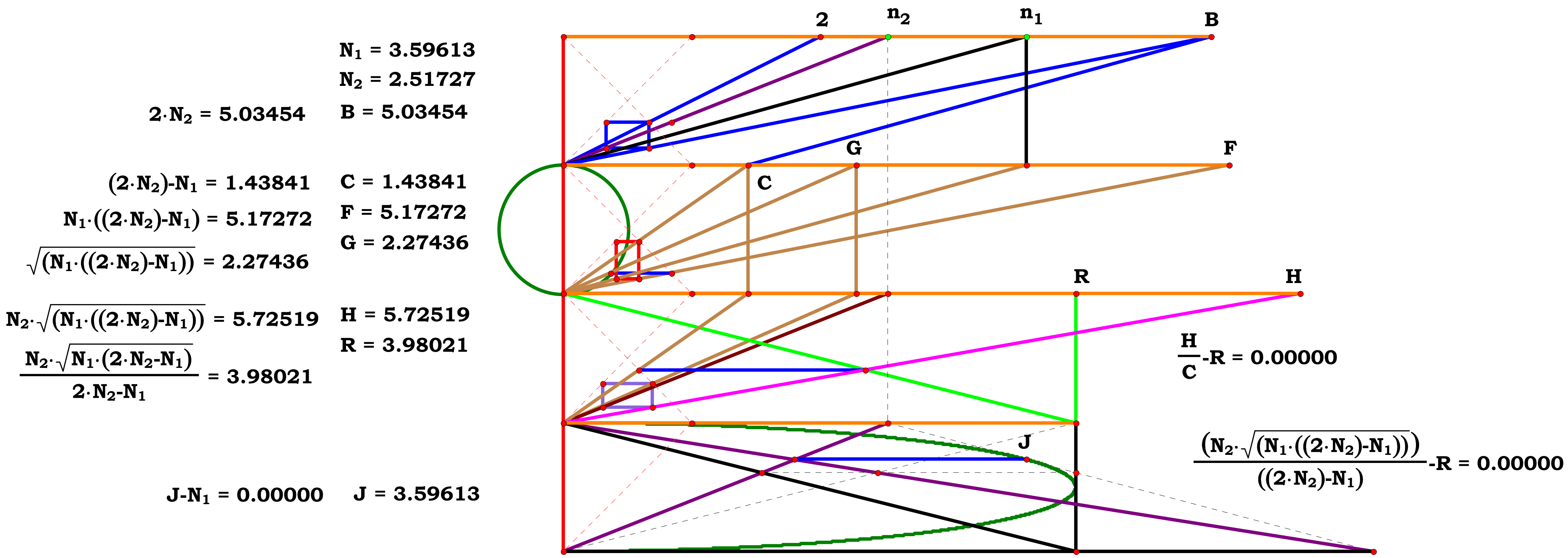
$$R_1 = 4.332134 \qquad R_2 = 3.20184$$

$$R_1 - \frac{N_1^{\,2}}{N_2} = 0 \qquad R_2 - \frac{2 \cdot N_1^{\,2} \cdot N_2}{N_1^{\,2} + N_2^{\,2}} = 0$$

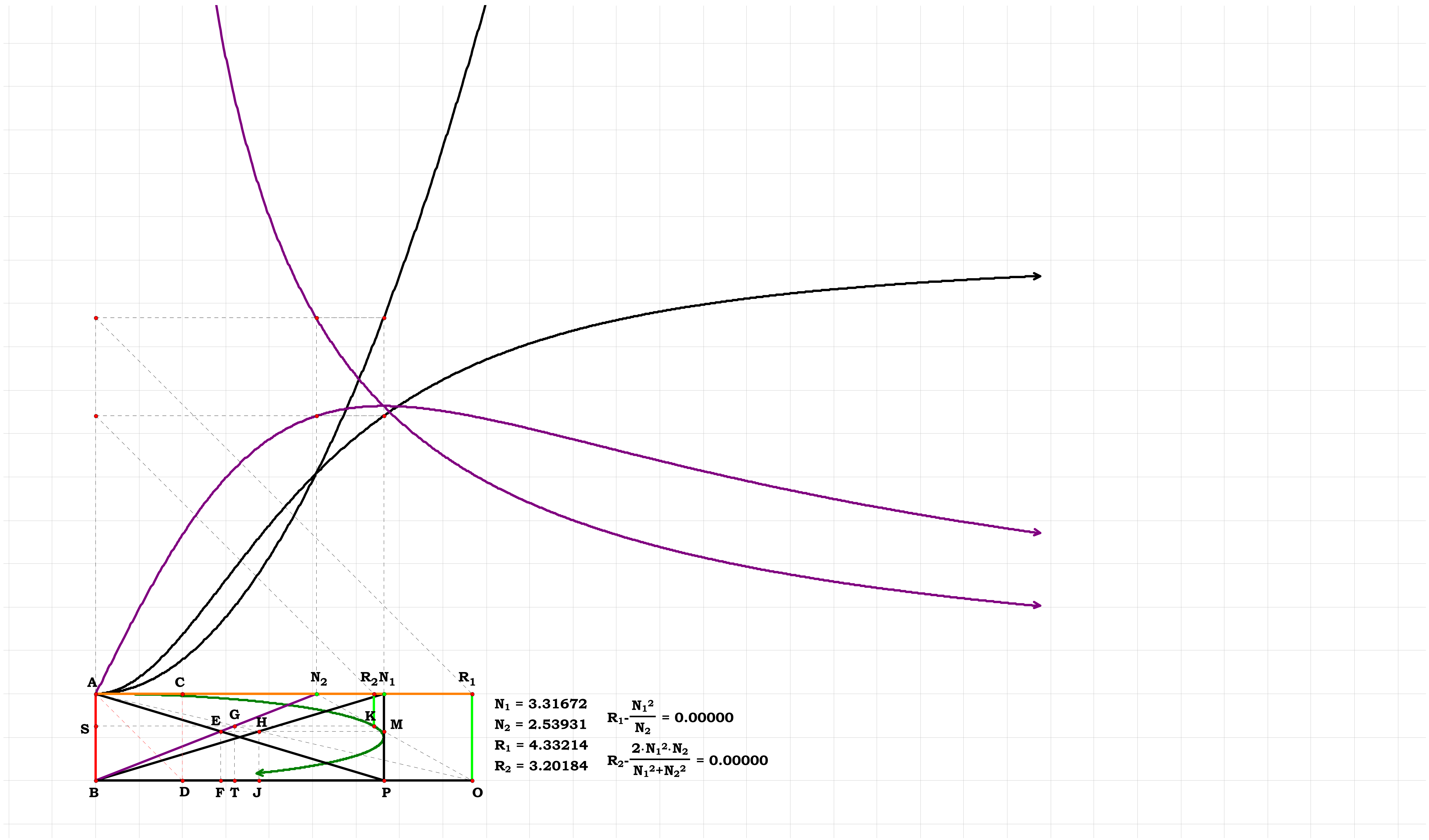
Therefore, even though, given only the two points, the logic gives us a means of drawing the figure for the solution.

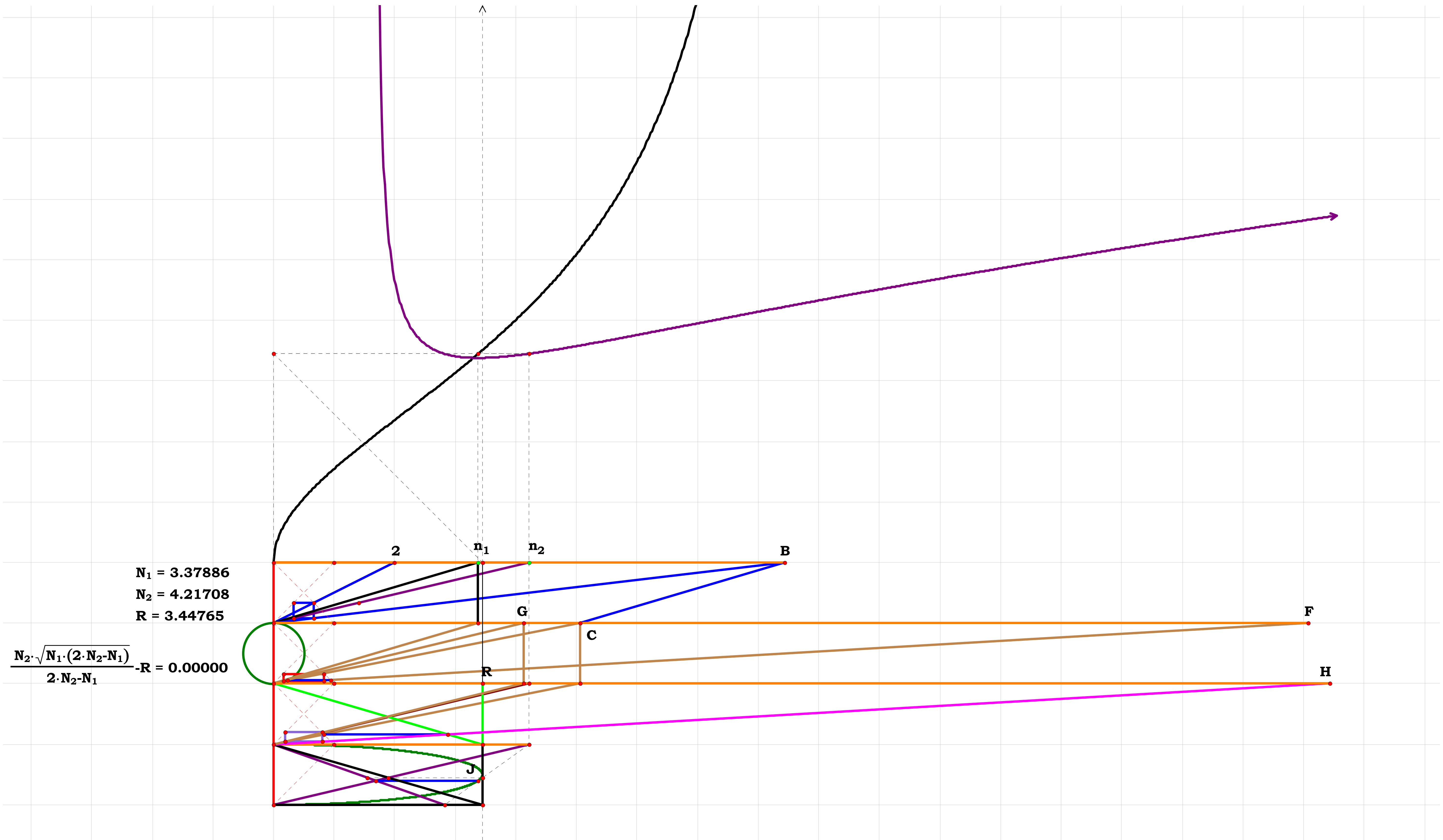
Now, if given N_2 and R_2 what would N_1 be? Given just 2 points, or any two values, it would not be possible, however, since we have the equation, we can now draw it to find the figure.

$$N_1 - \frac{N_2 \cdot \sqrt{R_2 \cdot (2 \cdot N_2 - R_2)}}{2 \cdot N_2 - R_2} = 0$$



Therefore, any point, on any circle or ellipse, may be espressed as a ratio between the two dimensions of a plane.
Both an ellipse and a circle are two-dimensional linear functions, one can say that it is the loci of such and such points; in either case, it is not *a line*. Every segment is of one-dimension, or linear.


A
C
N_2
R_2
N_1
R_1
S
E
G
H
K
M
B
D
F
T
J
P
O
$N_1 = 3.31672$
$N_2 = 2.53931$
$R_1 = 4.33214$
$R_2 = 3.20184$
$R_1 - \frac{N_1^2}{N_2} = 0.00000$
$R_2 - \frac{2 \cdot N_1^2 \cdot N_2}{N_1^2 + N_2^2} = 0.00000$



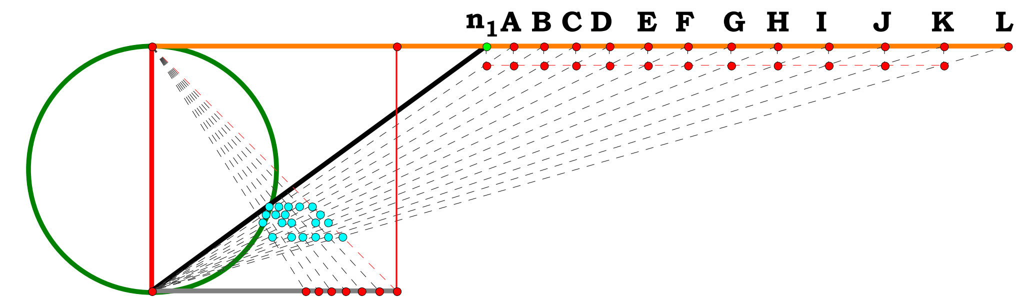
2
n_1
n_2
B
$N_1 = 3.37886$
$N_2 = 4.21708$
$R = 3.44765$
G
F
C
$\frac{N_2 \cdot \sqrt{N_1 \cdot (2 \cdot N_2 - N_1)}}{2 \cdot N_2 - N_1} - R = 0.00000$
R
H
J

Simple Geometric Series.

During my randome excursion into textbooks, I came across a statement by one author that exponential notation was not demonstrable, or abstractable from geometry. However, when I read that statement I reached a different conclusion, that the author could not draw his way out of a paper bag. It really does not take that much playing with basic geometric tools to discover a wealth of figures by which to develop geometric series. I will start with a simple root figure and add a bit of recursion. One will note that they can do a figure demonstrating both so called positive exponential series and negative with the same figure, or in short, the whole of basic exponential notation.

A = 1.47803	$N_1^{1.25}$-A = 0.00000
B = 1.59816	$N_1^{1.5}$-B = 0.00000
C = 1.72805	$N_1^{1.75}$-C = 0.00000
D = 1.86850	N_1^{2}-D = 0.00000
E = 2.02036	$N_1^{2.25}$-E = 0.00000
F = 2.18457	$N_1^{2.5}$-F = 0.00000
G = 2.36212	$N_1^{2.75}$-G = 0.00000
H = 2.55410	N_1^{3}-H = 0.00000
I = 2.76169	$N_1^{3.25}$-I = 0.00000
J = 2.98615	$N_1^{3.5}$-J = 0.00000
K = 3.22885	$N_1^{3.75}$-K = 0.00000
L = 3.49128	N_1^{4}-L = 0.00000

N_1 = 1.36693



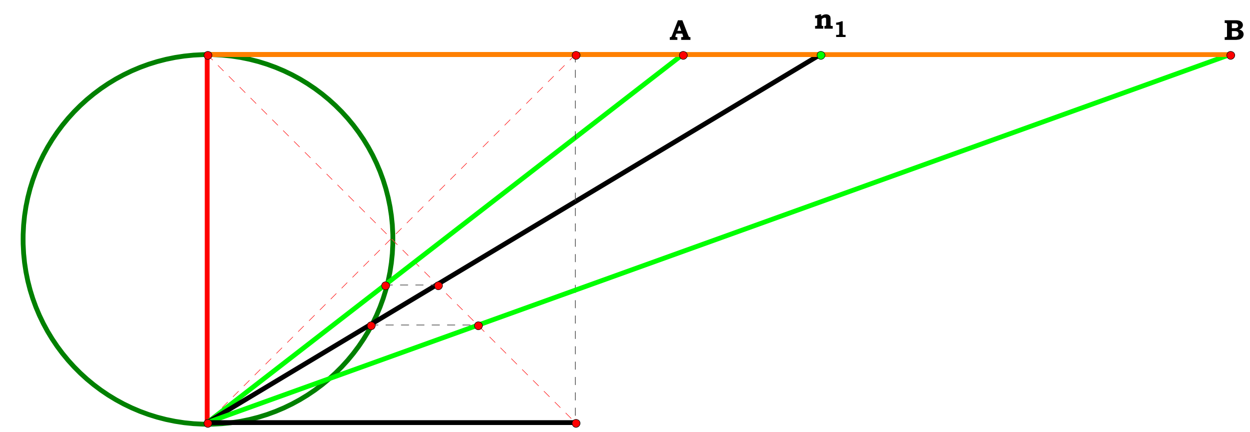
One can see that one of the operational tails can produce two results using the operational tail of the unit and the units circular function or circle for short.

The basic figure, where the circle is added to the unit example, can be understood as the pair of the unit and the primary unit function traditionally called a circle. Or, again, one can view the circle as the operational tail of the primitive linear function.

Each of the results also have the same option for development, thus one can, using the area of the operational tails, simply draw to their hearts content simple geometric series. And, if we make the unit a veriable or second input, one can start to complicate things. Then by tossing a function on the second, well one can generate all the head work they want. One can see, by the dual splitting of our options, why the results is a factor of 2. This may be a hint as to how to formulate series using a function on the unit and after the first split, switching to the unit for further recursions, or whatever one likes.

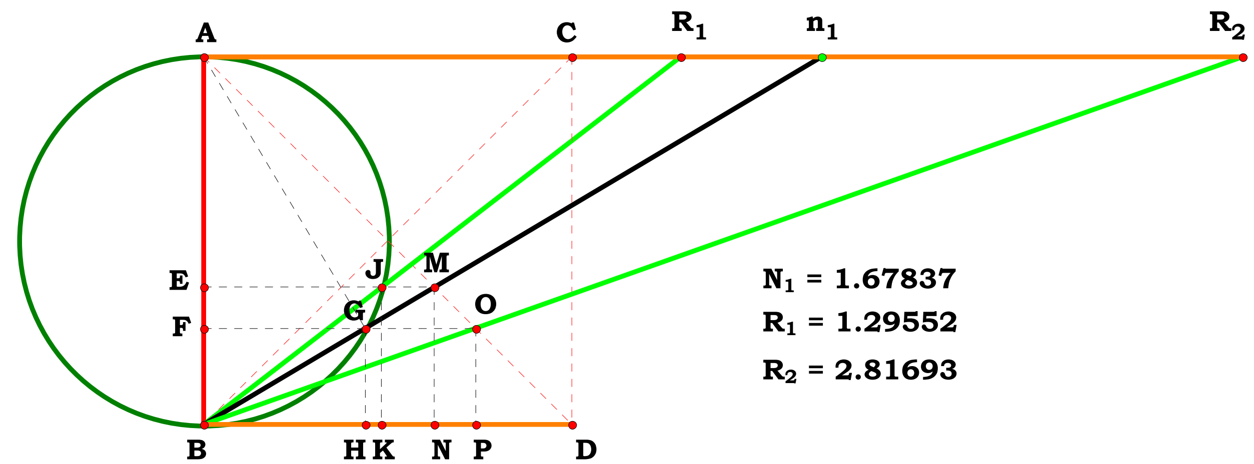
N_1 = 1.66534

A = 1.29048	$\sqrt{N_1}$ = 1.29048	$\sqrt{N_1}$-A = 0.00000
B = 2.77337	N_1^2 = 2.77337	N_1^2-B = 0.00000



$AB := 1$

$N_1 := 1.67837$



$N_1 = 1.67837$

$R_1 = 1.29552$

$R_2 = 2.81693$

$$MN := \frac{1}{N_1 + 1} \qquad EJ := \sqrt{MN\cdot(1 - MN)}$$

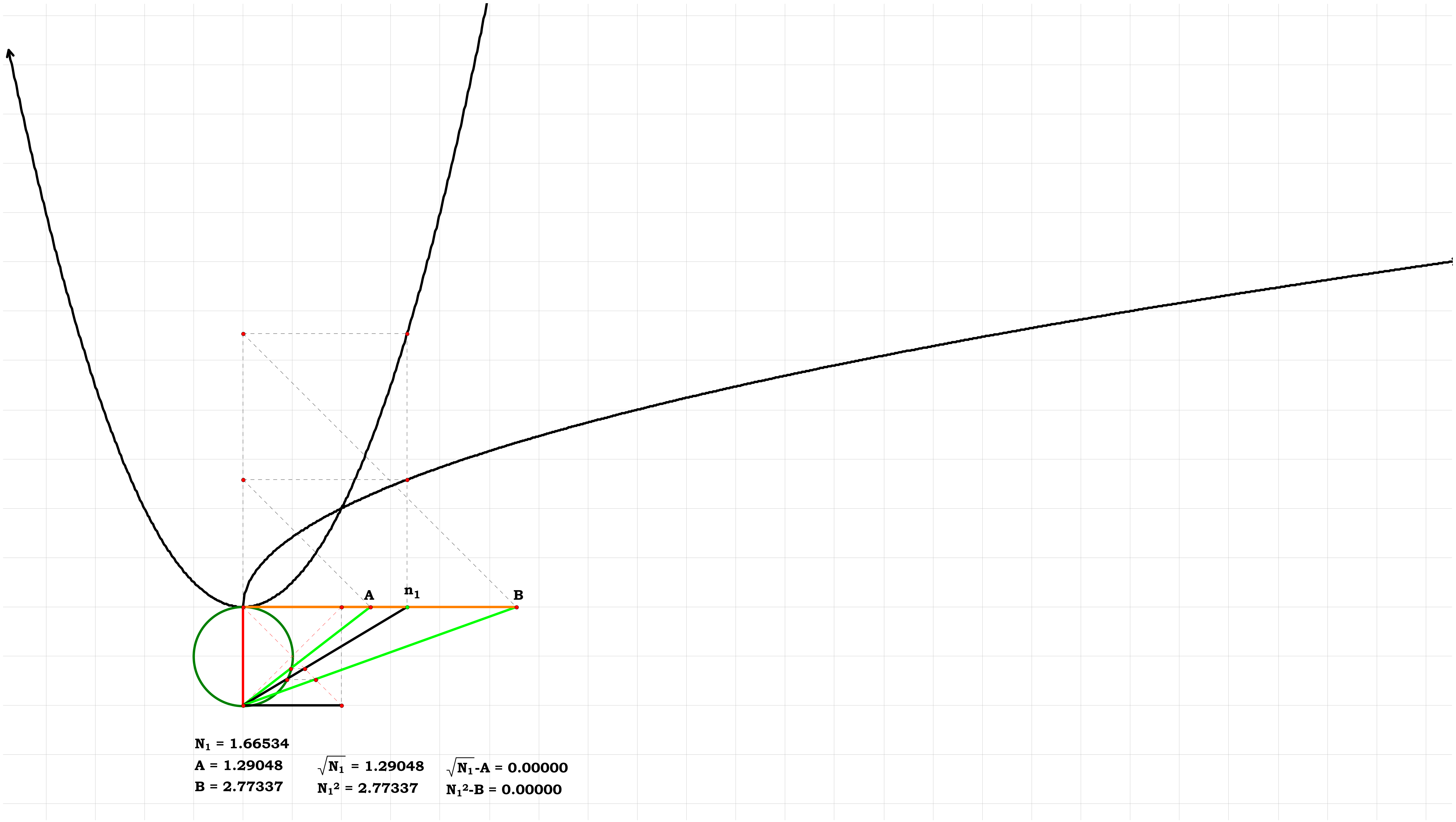
$$R_1 := \frac{EJ}{MN} \qquad R_1 - \sqrt{N_1} = 0$$

$$BN_1 := \sqrt{AB^2 + N_1^{\,2}} \qquad BG := \frac{AB^2}{BN_1}$$

$$FG := \frac{N_1\cdot BG}{BN_1} \qquad GH := \frac{FG}{N_1}$$

$$R_2 := \frac{1 - GH}{GH} \qquad N_1^{\,2} - R_2 = 0$$

Thus, one should realize, as soon as one is given the circle, they are given a linear function which automatically implies the importation of the so called Pythagorean Theorem. Thus, the so called theorem is just one results of what was given as soon as one had taken the original function. The fact of the matter is, one need not even mention it as it is one of a group of results. And, as one is given the circle, what is implied is, when one realize that the unit tail in the figure can be used to extrapolate a second variable, that the ellipse is a given also, or again, a geometric tool is that tool which produces one, and only one, difference between two points, or again, one in which is covered by the concept of complete induction of the unit. The whole train of thought which leads to discovering what a circle is, is not possible when one is thinking arithmetically, thought has to evolve to become inclusive of proportional reasoning which brings in multiplication and division, or again, the root functions. Proportion is a given as soon as one starts using the circle or the primitive unit function.



$N_1 = 1.66534$

$A = 1.29048$ $\quad \sqrt{N_1} = 1.29048$ $\quad \sqrt{N_1}-A = 0.00000$

$B = 2.77337$ $\quad N_1^2 = 2.77337$ $\quad N_1^2-B = 0.00000$

$AB := 1$

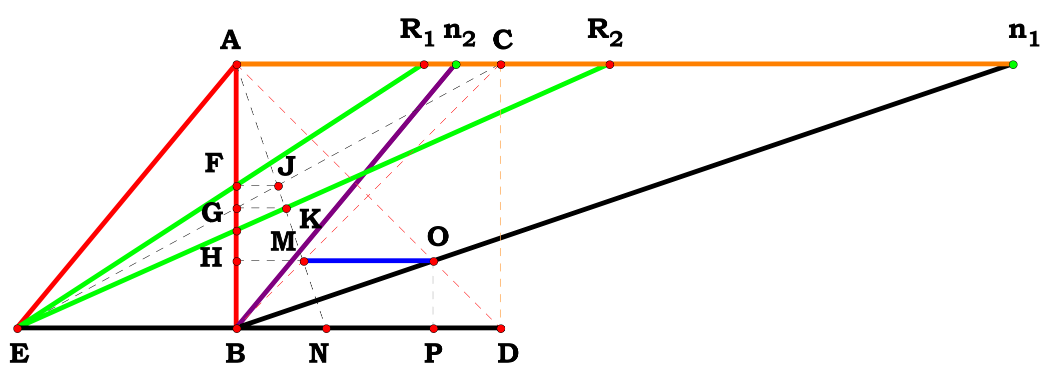
$N_1 := 2.93308$

$N_2 := .82839$

Sketch from 062412

One will notice that this is a geometric series which uses a second variable to deterine the point from which to project the series from. One may also notice, the vanishing point for the series, as shown in the second figure remains at 0 no matter what value one sets for either variable. One can manually adjust the second veriable in order to produce any number of proportionals within a given distance which means that a controlling structure to do exponential series can be plugged into the figure, if one knew what that plugin is.

$N_1 = 2.93308$
$N_2 = 0.82839$
$R_1 = 0.70843$
$R_2 = 1.41157$



$$BP := \frac{N_1}{N_1 + 1} \qquad AH := BP \qquad HM := 1 - AH \qquad BN := \frac{HM}{AH}$$

$$BE := N_2 \qquad BG := \frac{N_2}{N_2 + 1} \qquad AG := 1 - BG \qquad GK := BN \cdot AG$$

$$R_2 := \frac{BE + GK}{BG} - N_2 \qquad R_2 = 1.411568 \qquad R_2 - \frac{N_1 \cdot N_2 + 1}{N_1 \cdot N_2} = 0$$

$$BF := \frac{N_2 + BN}{N_2 + 1 + BN} \qquad R_1 := \frac{BE}{BF} - N_2 \qquad R_1 = 0.708432$$

$$R_1 - \frac{N_1 \cdot N_2}{N_1 \cdot N_2 + 1} = 0 \qquad R_1 - R_2^{-1} = 0$$

$A^2 - B = 0.00000$
$(A \cdot B) - C = 0.00000$
$B^2 - D = 0.00000$
$(B \cdot C) - E = 0.00000$

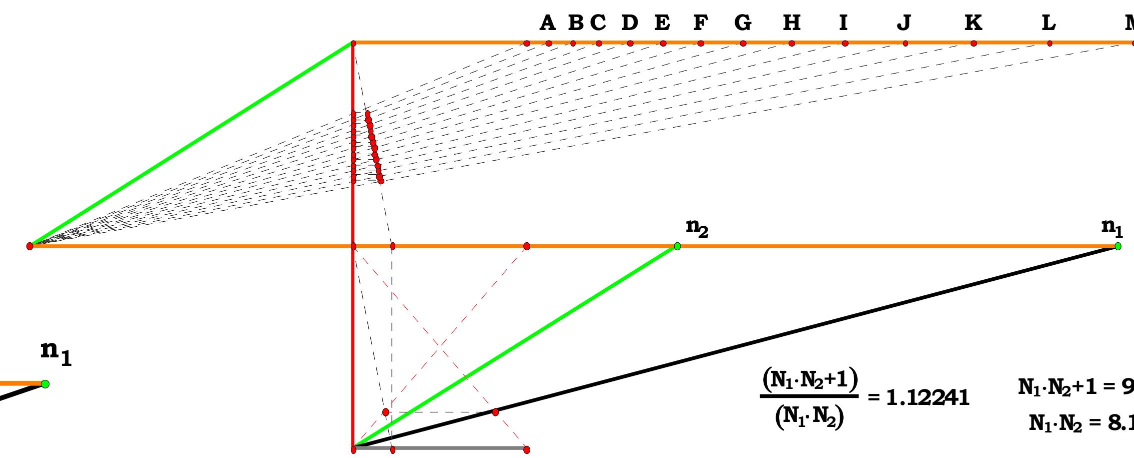
$C^2 - F = 0.00000$
$(C \cdot D) - G = 0.00000$
$D^2 - H = 0.00000$
$(D \cdot E) - I = 0.00000$

$E^2 - J = 0.00000$
$(E \cdot F) - K = 0.00000$
$F^2 - L = 0.00000$
$(F \cdot G) - M = 0.00000$

$\frac{N_1 \cdot N_2 + 1^{1}}{N_1 \cdot N_2} - A = 0.00000$
$\frac{(N_1 \cdot N_2 + 1)^2}{(N_1 \cdot N_2)} - B = 0.00000$
$\frac{(N_1 \cdot N_2 + 1)^3}{(N_1 \cdot N_2)} - C = 0.00000$
$\frac{(N_1 \cdot N_2 + 1)^4}{(N_1 \cdot N_2)} - D = 0.00000$

$\frac{(N_1 \cdot N_2 + 1)^5}{(N_1 \cdot N_2)} - E = 0.00000$
$\frac{(N_1 \cdot N_2 + 1)^6}{(N_1 \cdot N_2)} - F = 0.00000$
$\frac{(N_1 \cdot N_2 + 1)^7}{(N_1 \cdot N_2)} - G = 0.00000$
$\frac{(N_1 \cdot N_2 + 1)^8}{(N_1 \cdot N_2)} - H = 0.00000$

$\frac{(N_1 \cdot N_2 + 1)^9}{(N_1 \cdot N_2)} - I = 0.00000$
$\frac{(N_1 \cdot N_2 + 1)^{10}}{(N_1 \cdot N_2)} - J = 0.00000$
$\frac{(N_1 \cdot N_2 + 1)^{11}}{(N_1 \cdot N_2)} - K = 0.00000$
$\frac{(N_1 \cdot N_2 + 1)^{12}}{(N_1 \cdot N_2)} - L = 0.00000$
$\frac{(N_1 \cdot N_2 + 1)^{13}}{(N_1 \cdot N_2)} - M = 0.00000$



$\frac{(N_1 \cdot N_2 + 1)}{(N_1 \cdot N_2)} = 1.12241$

$N_1 \cdot N_2 + 1 = 9.16907$
$N_1 \cdot N_2 = 8.16907$

$A^3 - C = 0.00000$
$B^3 - F = 0.00000$
$C^3 - I = 0.00000$
$D^3 - L = 0.00000$

$N_1 = 4.39883$
$N_2 = 1.85710$

$A = 1.12241$
$B = 1.25981$
$C = 1.41403$
$D = 1.58712$
$E = 1.78141$

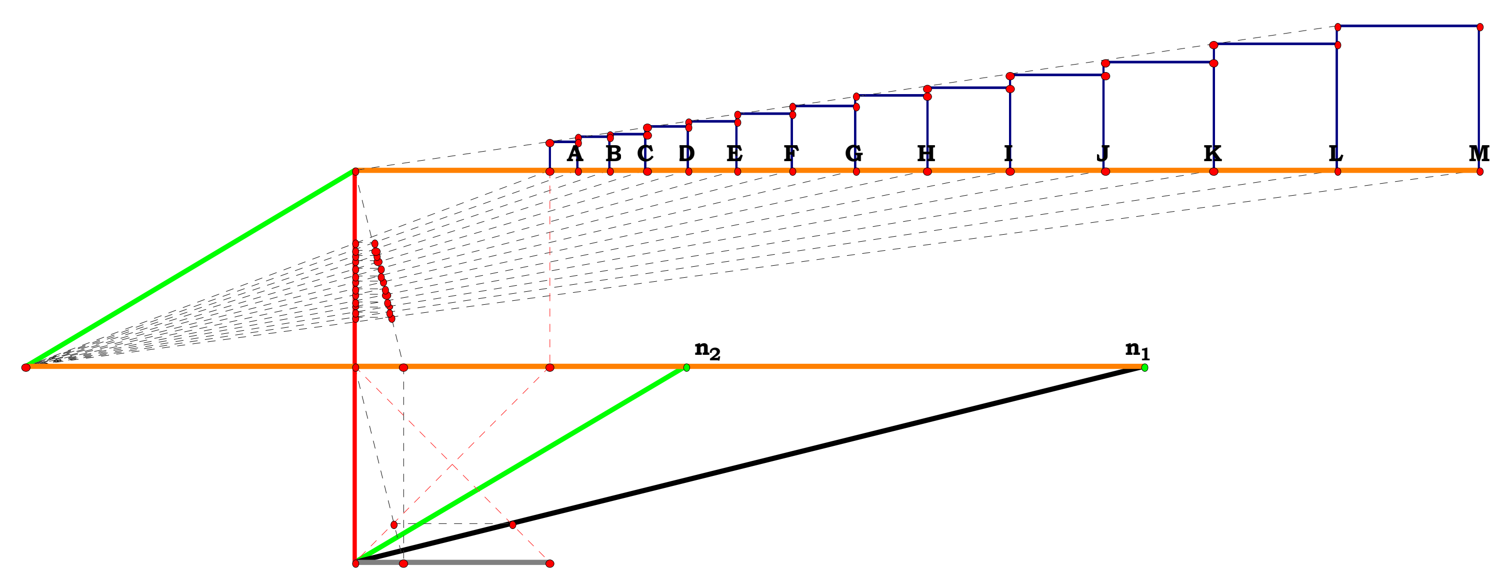
$F = 1.99947$
$G = 2.24424$
$H = 2.51896$
$I = 2.82731$

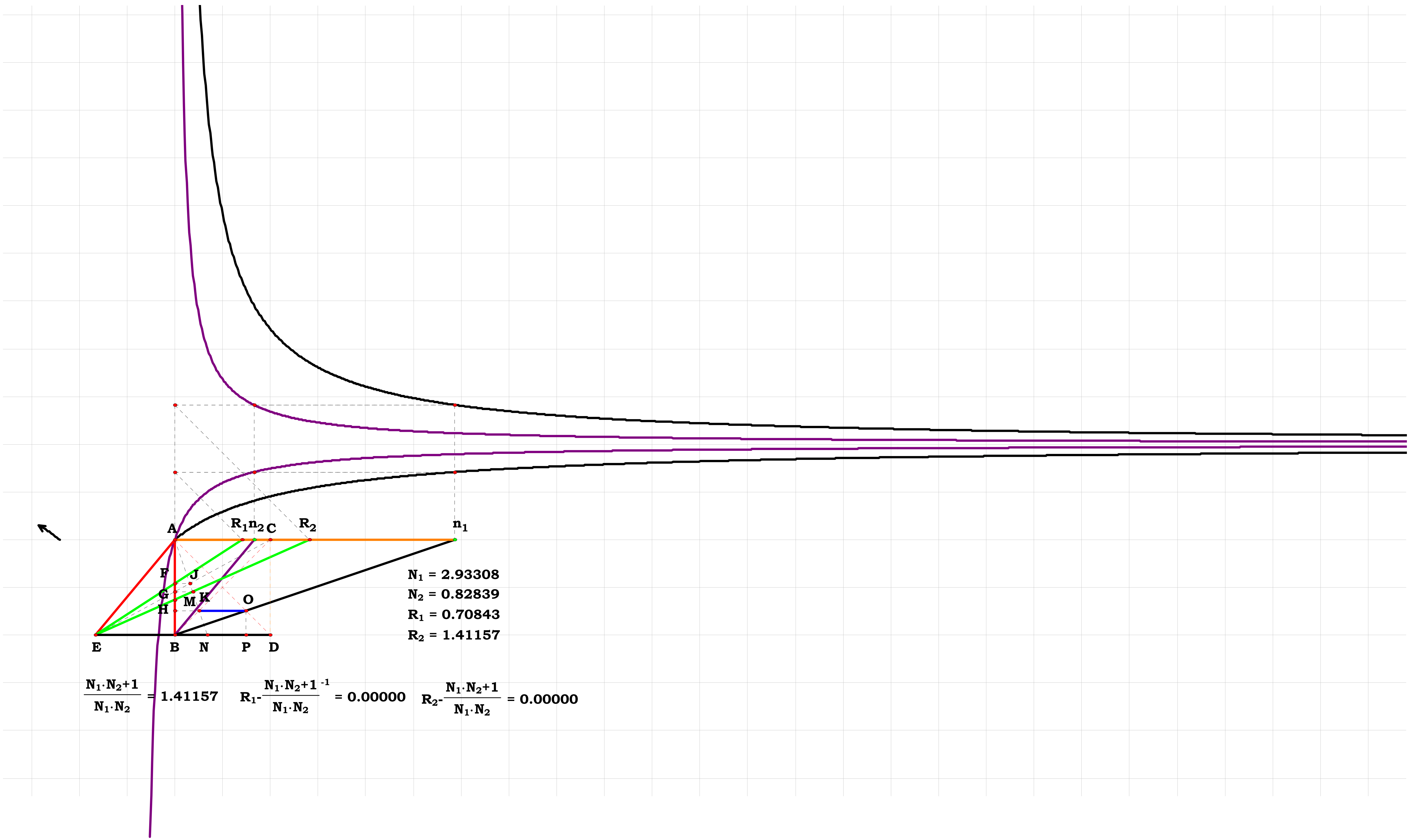
$J = 3.17341$
$K = 3.56188$
$L = 3.99790$
$M = 4.48729$

$A^2 = 1.25981$
$A \cdot B = 1.41403$
$B^2 = 1.58712$
$B \cdot C = 1.78141$

$C^2 = 1.99947$
$C \cdot D = 2.24424$
$D^2 = 2.51896$
$D \cdot E = 2.82731$

$E^2 = 3.17341$
$E \cdot F = 3.56188$
$F^2 = 3.99790$
$F \cdot G = 4.48729$



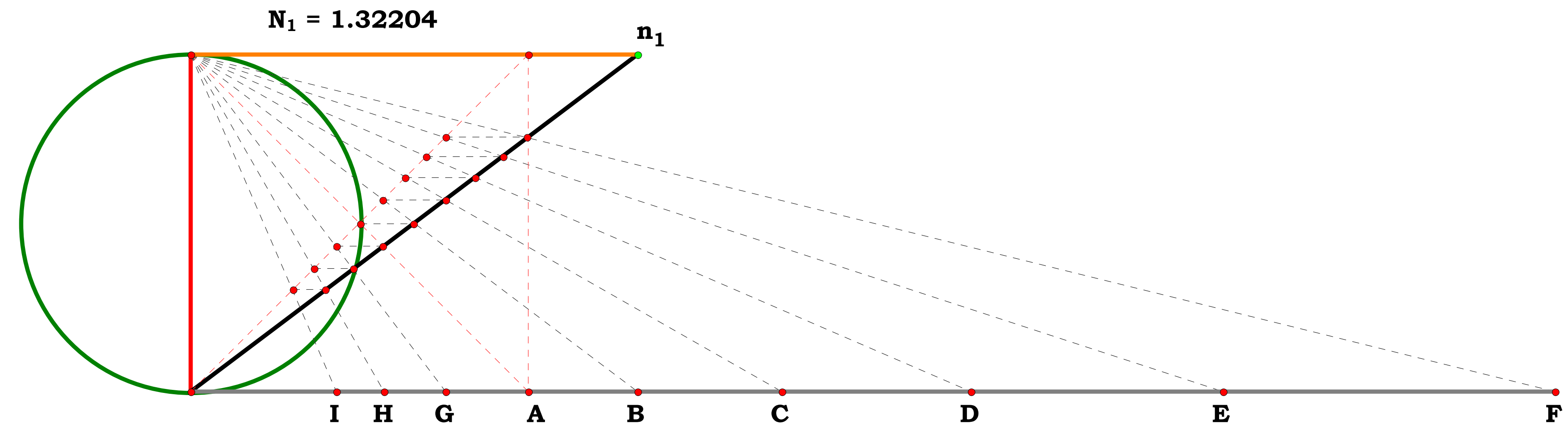


A
R1
n2
C
R2
n1
F
J
G
M
K
O
H
E
B
N
P
D
N1 = 2.93308
N2 = 0.82839
R1 = 0.70843
R2 = 1.41157
(N1·N2+1)/(N1·N2) = 1.41157
R1-(N1·N2+1)^-1/(N1·N2) = 0.00000
R2-(N1·N2+1)/(N1·N2) = 0.00000

072211-1

Just another easily constructable exponential series. However, one can add this plate to the previous one using each point on this as the second variable in that plate.

A = 1.00000	N_1^0-A = 0.00000
B = 1.32204	N_1^1-B = 0.00000
C = 1.74778	N_1^2-C = 0.00000
D = 2.31062	N_1^3-D = 0.00000
E = 3.05473	N_1^4-E = 0.00000
F = 4.03846	N_1^5-F = 0.00000
G = 0.75641	N_1^{-1}-G = 0.00000
H = 0.57216	N_1^{-2}-H = 0.00000
I = 0.43278	N_1^{-3}-I = 0.00000



$AB := 1$

$N_1 := 1.72698$

$KM := \dfrac{1}{N_1 + 1}$ $\quad BM := \dfrac{N_1}{N_1 + 1}$

$R_1 := \dfrac{KM}{BM}$ $\quad R_1 = 0.579046$

$R_1 - \dfrac{1}{N_1} = 0$ $\quad R_1 - N_1^{-1} = 0$

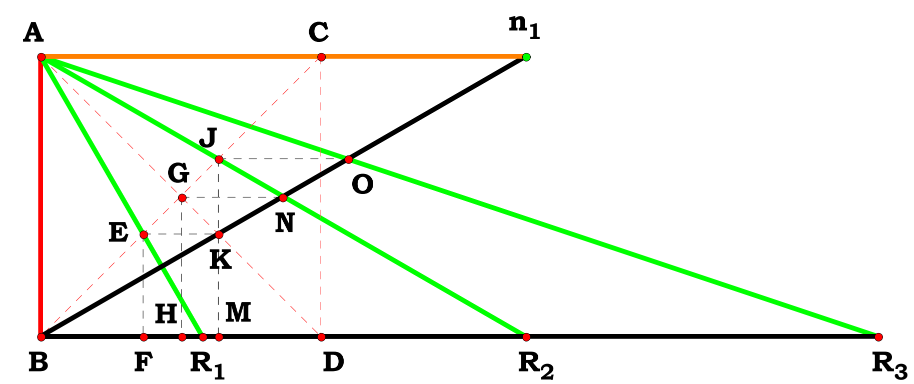
$BD := AB$ $\quad BD - N_1^{0} = 0$ $\quad GH := \dfrac{AB}{2}$

$R_2 := \dfrac{N_1 \cdot GH}{GH}$ $\quad R_2 - N_1 = 0$ $\quad R_2 - N_1^{1} = 0$

$JM := BM$ $\quad R_3 := \dfrac{N_1 \cdot JM}{KM}$ $\quad R_3 = 2.98246$

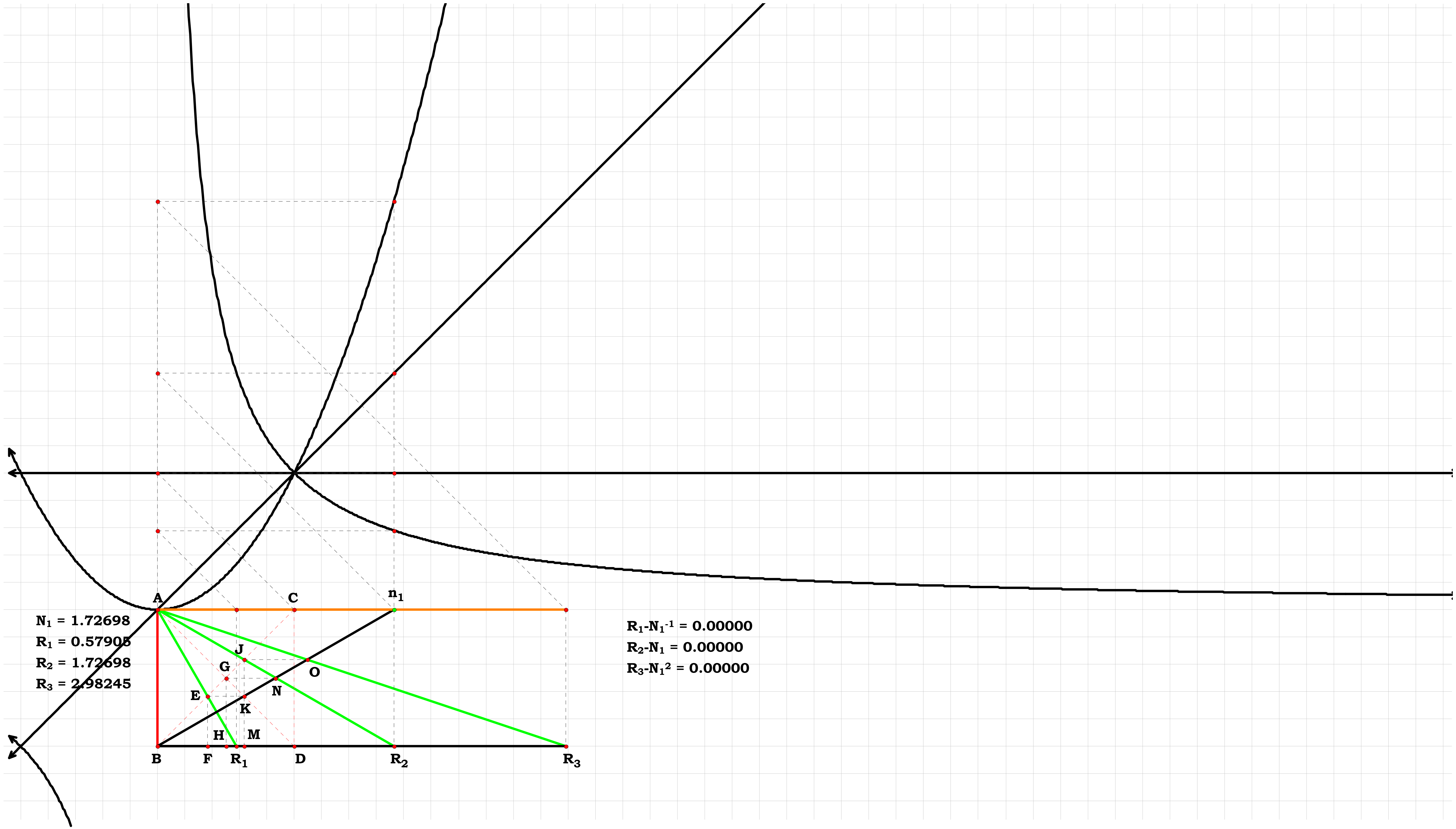
$R_3 - N_1^{2} = 0$

$N_1 = 1.72698$
$R_1 = 0.57905$
$R_2 = 1.72698$
$R_3 = 2.98245$



One might notice, no matter where N_1 is, AR_1 will always be perpendicular to BN_1, or again, their intersection will always be on the circomference of a circle.

And thus we have four values in a geometric series. One may note, that if I was constructing, which I did for the temple, an arithmetic series, I would use AB, instead of AC to walk the series.


A
C
n1
N1 = 1.72698
R1 = 0.57905
R2 = 1.72698
R3 = 2.98245
J
G
O
E
N
K
H
M
B
F
R1
D
R2
R3
R1-N1^-1 = 0.00000
R2-N1 = 0.00000
R3-N1^2 = 0.00000

072211-2

$$AB := 1$$
$$N_1 := 2.13284$$
$$N_2 := 3.17169$$
$$AF := \frac{AB}{2}$$

$$BM := N_1 \cdot AF \qquad BT := N_2 \cdot AF$$

$$R_2 := \frac{BM}{AF} \qquad R_3 := \frac{BT}{AF}$$

$$R_2 = 2.13284 \qquad R_3 = 3.17169$$

$$HJ := \frac{R_2}{N_2 + R_2} \qquad BJ := N_1 \cdot HJ$$

$$R_1 := \frac{BJ}{AB - HJ} \qquad NP := \frac{R_3}{R_3 + N_1}$$

$$BV := N_2 \cdot NP \qquad R_4 := \frac{BV}{AB - NP}$$

$$R_1 = 1.434253 \qquad R_4 = 4.716536$$

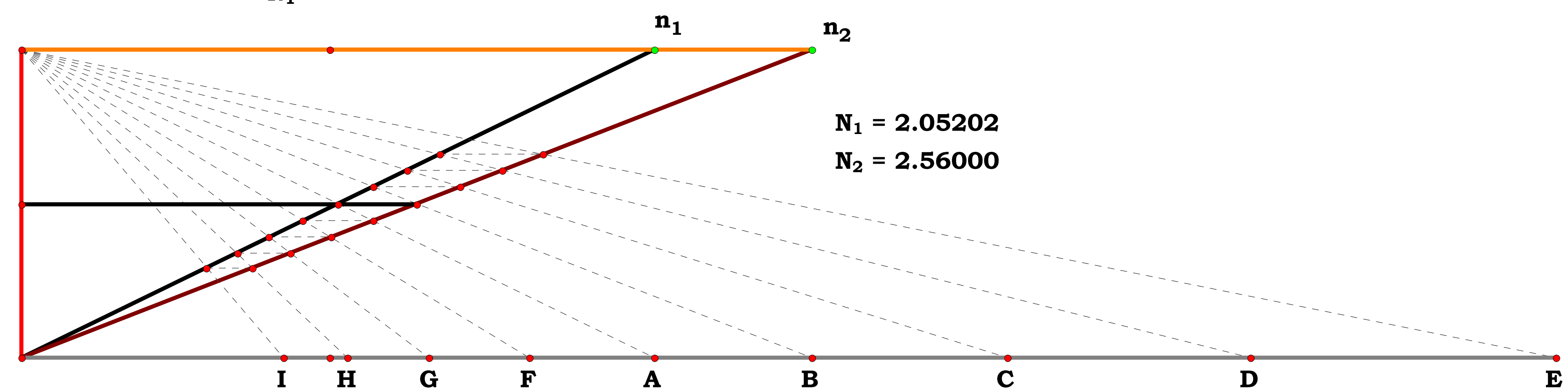
$$A = 2.05202 \qquad \frac{N_2{}^0}{N_1{}^{-1}} = 2.05202 \qquad F = 1.64485 \qquad \frac{N_2{}^{-1}}{N_1{}^{-2}} = 1.64485 \qquad A - \frac{N_2{}^0}{N_1{}^{-1}} = 0.00000 \qquad F - \frac{N_2{}^{-1}}{N_1{}^{-2}} = 0.00000$$

$$B = 2.56000 \qquad \frac{N_2{}^1}{N_1{}^{0}} = 2.56000 \qquad G = 1.31846 \qquad \frac{N_2{}^{-2}}{N_1{}^{-3}} = 1.31846 \qquad B - \frac{N_2{}^1}{N_1{}^{0}} = 0.00000 \qquad G - \frac{N_2{}^{-2}}{N_1{}^{-3}} = 0.00000$$

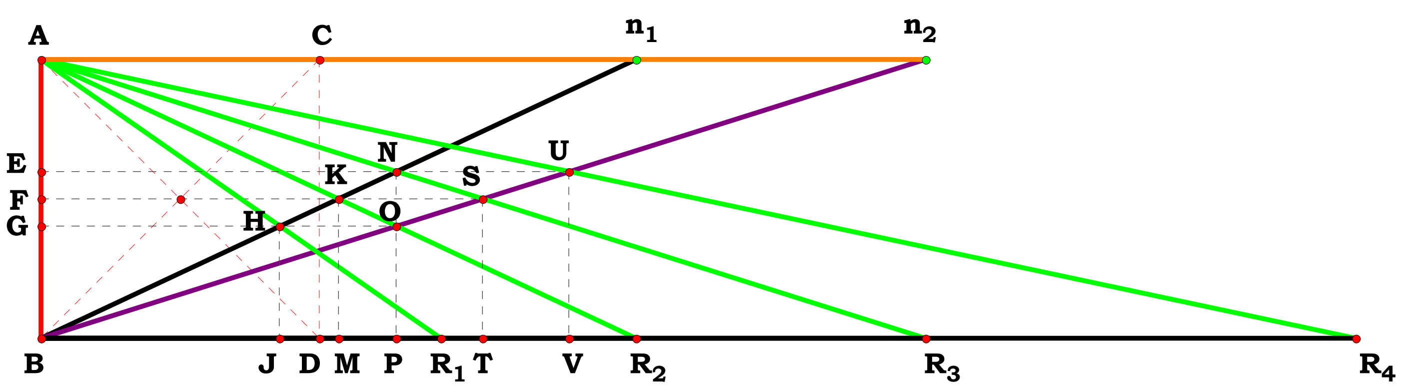
$$C = 3.19372 \qquad \frac{N_2{}^2}{N_1{}^{1}} = 3.19372 \qquad H = 1.05685 \qquad \frac{N_2{}^{-3}}{N_1{}^{-4}} = 1.05685 \qquad C - \frac{N_2{}^2}{N_1{}^{1}} = 0.00000 \qquad H - \frac{N_2{}^{-3}}{N_1{}^{-4}} = 0.00000$$

$$D = 3.98432 \qquad \frac{N_2{}^3}{N_1{}^{2}} = 3.98432 \qquad I = 0.84714 \qquad \frac{N_2{}^{-4}}{N_1{}^{-5}} = 0.84714 \qquad D - \frac{N_2{}^3}{N_1{}^{2}} = 0.00000 \qquad I - \frac{N_2{}^{-4}}{N_1{}^{-5}} = 0.00000$$

$$E = 4.97062 \qquad \frac{N_2{}^4}{N_1{}^{3}} = 4.97062 \qquad E - \frac{N_2{}^4}{N_1{}^{3}} = 0.00000$$

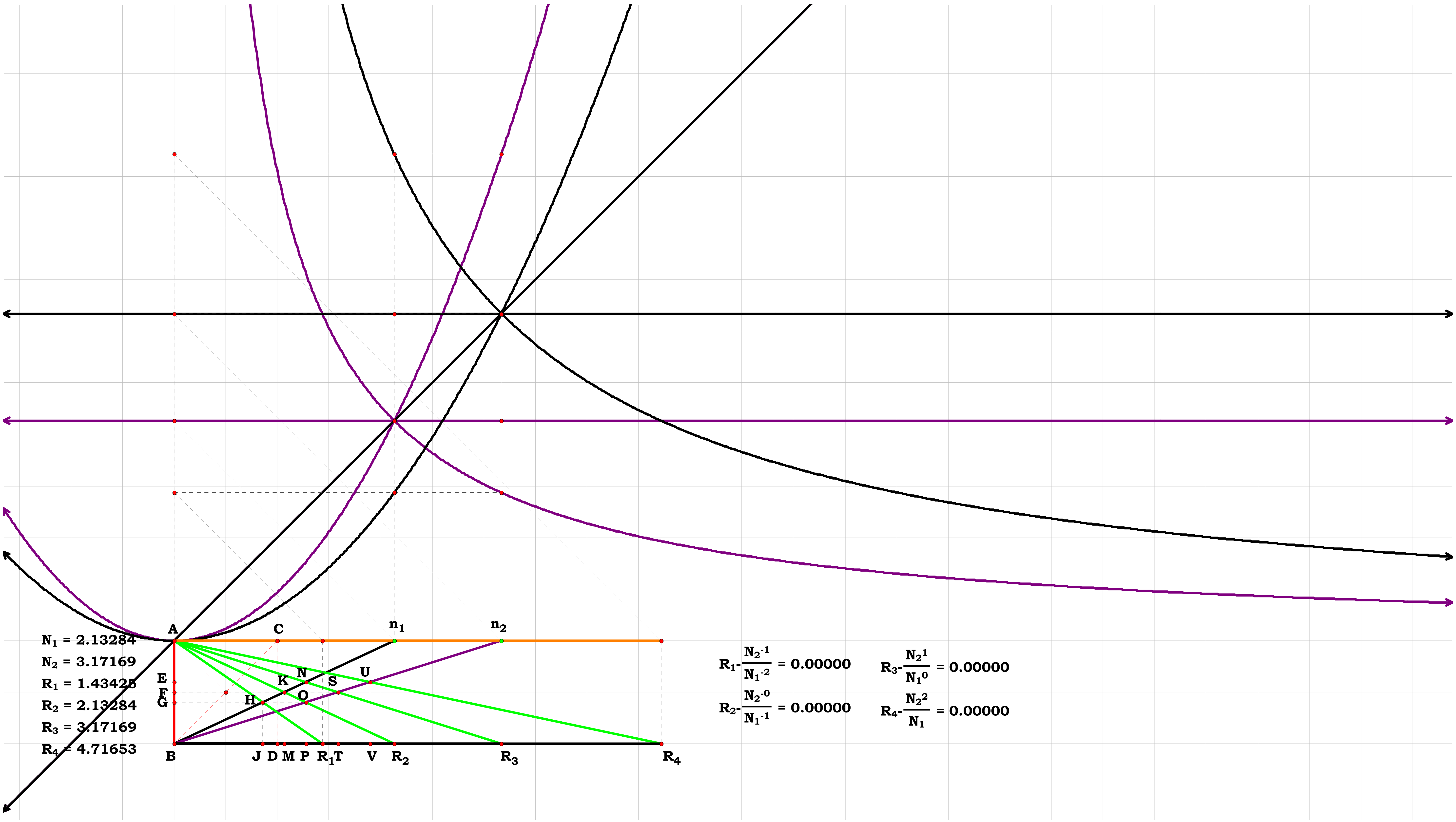


N1 = 2.13284
N2 = 3.17169
R1 = 1.43425
R2 = 2.13284
R3 = 3.17169
R4 = 4.71653



$$R_1 - \frac{N_1{}^2}{N_2} = 0 \qquad R_2 - N_1 = 0 \qquad R_3 - N_2 = 0 \qquad R_4 - \frac{N_2{}^2}{N_1} = 0$$

$$R_1 - \frac{N_2{}^{-1}}{N_1{}^{-2}} = 0 \qquad R_2 - \frac{N_2{}^{-0}}{N_1{}^{-1}} = 0 \qquad R_3 - \frac{N_2{}^{1}}{N_1{}^{0}} = 0 \qquad R_4 - \frac{N_2{}^{2}}{N_1} = 0$$



A
C
n_1
n_2
$N_1 = 2.13284$
$N_2 = 3.17169$
$R_1 = 1.43425$
$R_2 = 2.13284$
$R_3 = 3.17169$
$R_4 = 4.71653$
E
F
G
H
K
N
O
S
U
B
J
D
M
P
R_1
T
V
R_2
R_3
R_4
$R_1 - \frac{N_2^{-1}}{N_1^{-2}} = 0.00000$
$R_3 - \frac{N_2^{1}}{N_1^{0}} = 0.00000$
$R_2 - \frac{N_2^{-0}}{N_1^{-1}} = 0.00000$
$R_4 - \frac{N_2^{2}}{N_1} = 0.00000$

080912

$AB := 1$

$N_1 := 3.46347$

$N_2 := 2.62874$

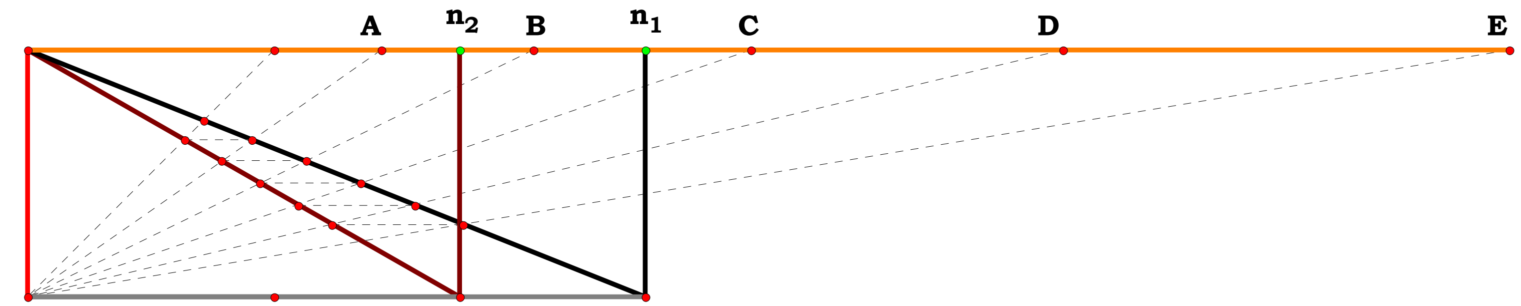
A = 1.43109 $\quad \dfrac{N_1}{N_2} - A = 0.00000$

B = 2.04801 $\quad \dfrac{N_1}{N_2}^2 - B = 0.00000$

C = 2.93088 $\quad \dfrac{N_1}{N_2}^3 - C = 0.00000$

D = 4.19435 $\quad \dfrac{N_1}{N_2}^4 - D = 0.00000$

E = 6.00248 $\quad \dfrac{N_1}{N_2}^5 - E = 0.00000$



$$AE := \frac{AB}{N_2 + AB} \qquad BN := AE \cdot N_1$$

$$A_1 := \frac{BN}{1 - AE} \qquad AF := \frac{A_1}{A_1 + N_2}$$

$$BT := AF \cdot N_1 \qquad B_1 := \frac{BT}{1 - AF}$$

$$AG := \frac{B_1}{B_1 + N_2} \qquad BX := AG \cdot N_1$$

$$C_1 := \frac{BX}{1 - AG} \qquad AH := \frac{C_1}{C_1 + N_2}$$

$$BZ := AH \cdot N_1 \qquad D_1 := \frac{BZ}{1 - AH}$$

$N_1 = 3.46347$

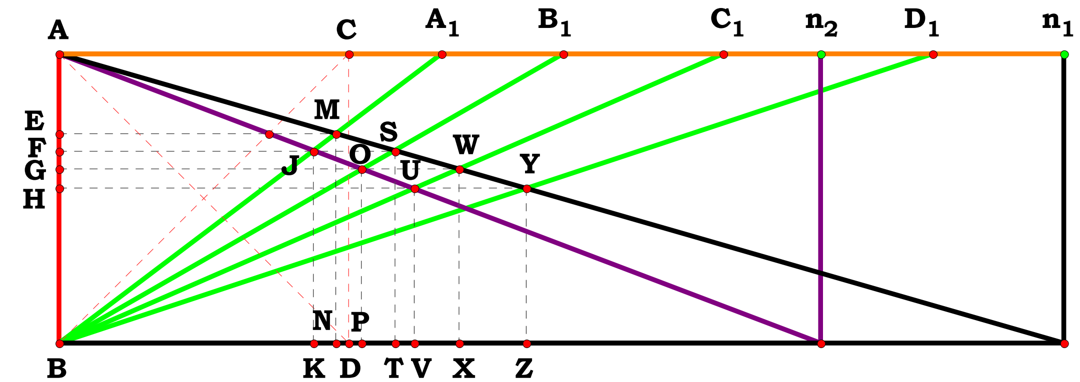
$N_2 = 2.62874$

$A_1 = 1.31754$

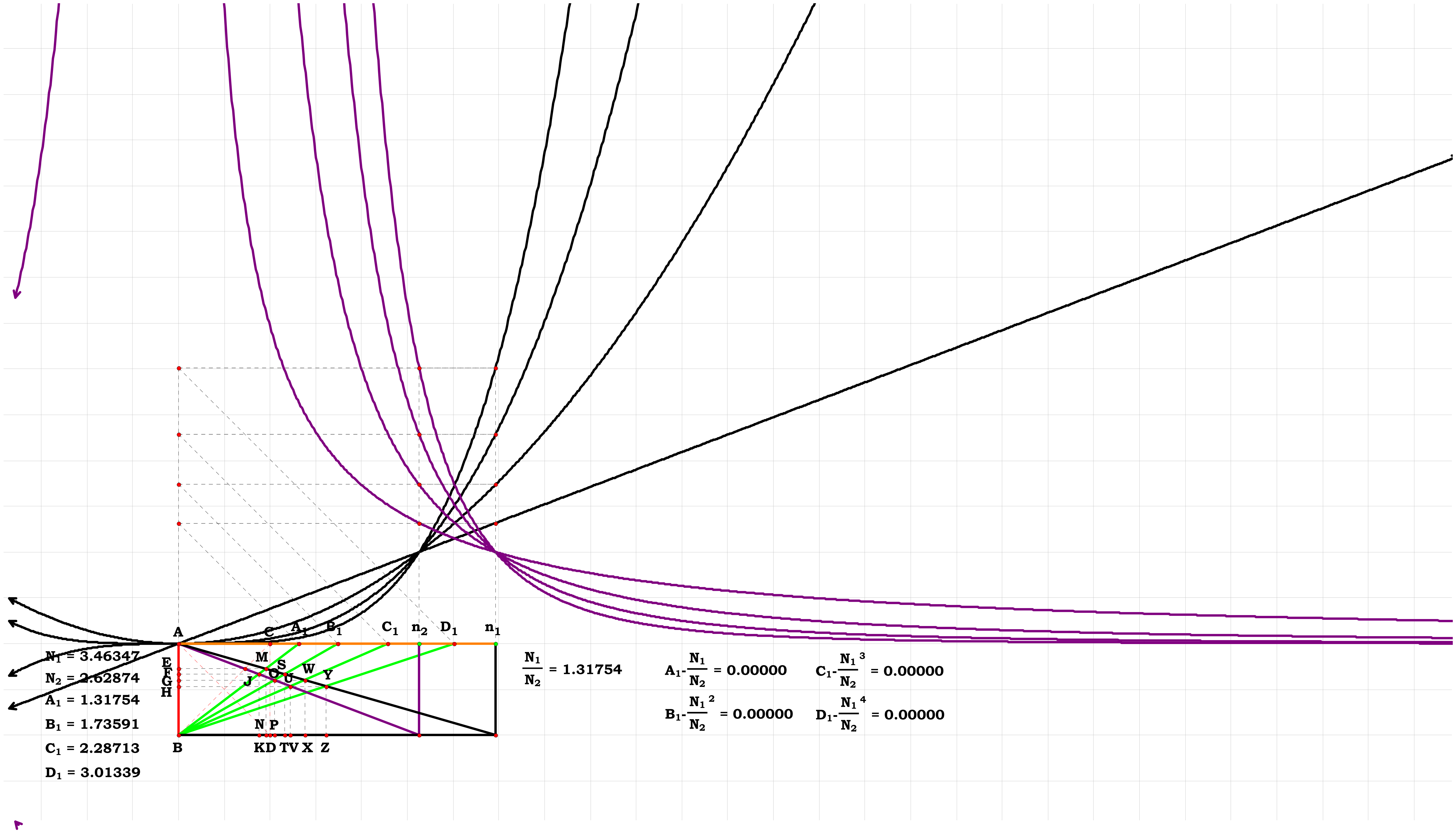
$B_1 = 1.73591$

$C_1 = 2.28713$

$D_1 = 3.01339$



$$A_1 - \frac{N_1}{N_2} = 0 \qquad B_1 - \left(\frac{N_1}{N_2}\right)^2 = 0 \qquad C_1 - \left(\frac{N_1}{N_2}\right)^3 = 0 \qquad D_1 - \left(\frac{N_1}{N_2}\right)^4 = 0$$



A
C
A1
B1
C1
n2
D1
n1
N1 = 3.46347
N2 = 2.62874
A1 = 1.31754
B1 = 1.73591
C1 = 2.28713
D1 = 3.01339
E
F
G
H
M
S
O
U
W
Y
J
N
P
B
KD
TV
X
Z
N1/N2 = 1.31754
A1-N1/N2 = 0.00000
B1-(N1/N2)^2 = 0.00000
C1-(N1/N2)^3 = 0.00000
D1-(N1/N2)^4 = 0.00000

081112

$AB := 1$

$N_1 := 1.24957$

$N_2 := 2.52225$

$N_3 := .58657$

Although one can project the results from the origin, the exponential ladder is made behind it and must be completed anyway.

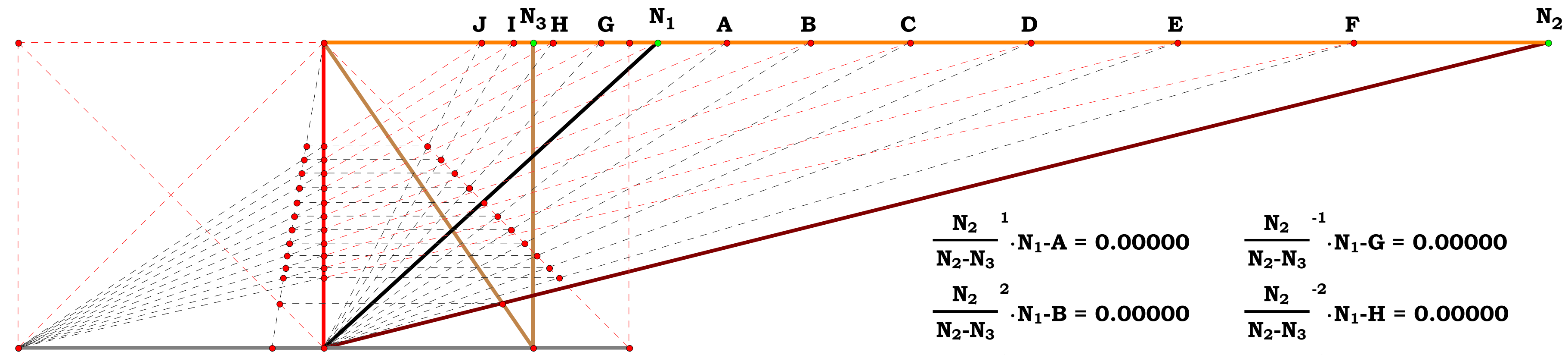
$$BI := 1 - \frac{N_2}{N_2 + N_3} \qquad BP := \frac{BI}{1 - BI} \qquad BF := \frac{1}{N_1 + 1}$$

$$FK := BP \cdot (1 - BF) \qquad R_2 := \frac{1 - FK}{BF} - 1 \qquad BE := \frac{1}{R_2 + 1}$$

$$EK := BP \cdot (1 - BE) \qquad R_1 := \frac{1 - EK}{BE} - 1 \qquad GM := \frac{BP \cdot N_1}{N_1 + 1 - BP}$$

$$BG := 1 - \frac{GM}{BP} \qquad R_3 := \frac{1}{BG} - 1 \qquad HN := \frac{BP \cdot R_3}{R_3 + 1 - BP}$$

$$BH := 1 - \frac{HN}{BP} \qquad R_4 := \frac{1}{BH} - 1$$



$$\left(\frac{N_1^{\frac{1}{4}} \cdot N_2}{N_2 - N_3}\right)^4 - D = 0.00000$$

$$\frac{N_1 \cdot N_2^4}{(N_2 - N_3)^4} - D = 0.00000$$

$$\frac{N_2}{N_2 - N_3} = 1.20647$$

$N_1 = 1.09230$

$N_2 = 4.00439$

$N_3 = 0.68530$

$A = 1.31783$

$B = 1.58992$

$C = 1.91819$

$D = 2.31425$

$E = 2.79207$

$F = 3.36855$

$G = 0.90537$

$H = 0.75043$

$I = 0.62200$

$J = 0.51556$

$$\left(\frac{N_2}{N_2 - N_3}\right)^1 \cdot N_1 - A = 0.00000$$

$$\left(\frac{N_2}{N_2 - N_3}\right)^2 \cdot N_1 - B = 0.00000$$

$$\left(\frac{N_2}{N_2 - N_3}\right)^3 \cdot N_1 - C = 0.00000$$

$$\left(\frac{N_2}{N_2 - N_3}\right)^4 \cdot N_1 - D = 0.00000$$

$$\left(\frac{N_2}{N_2 - N_3}\right)^5 \cdot N_1 - E = 0.00000$$

$$\left(\frac{N_2}{N_2 - N_3}\right)^6 \cdot N_1 - F = 0.00000$$

$$\left(\frac{N_2}{N_2 - N_3}\right)^{-1} \cdot N_1 - G = 0.00000$$

$$\left(\frac{N_2}{N_2 - N_3}\right)^{-2} \cdot N_1 - H = 0.00000$$

$$\left(\frac{N_2}{N_2 - N_3}\right)^{-3} \cdot N_1 - I = 0.00000$$

$$\left(\frac{N_2}{N_2 - N_3}\right)^{-4} \cdot N_1 - J = 0.00000$$

$N_1 = 1.24957$

$N_2 = 2.52225$

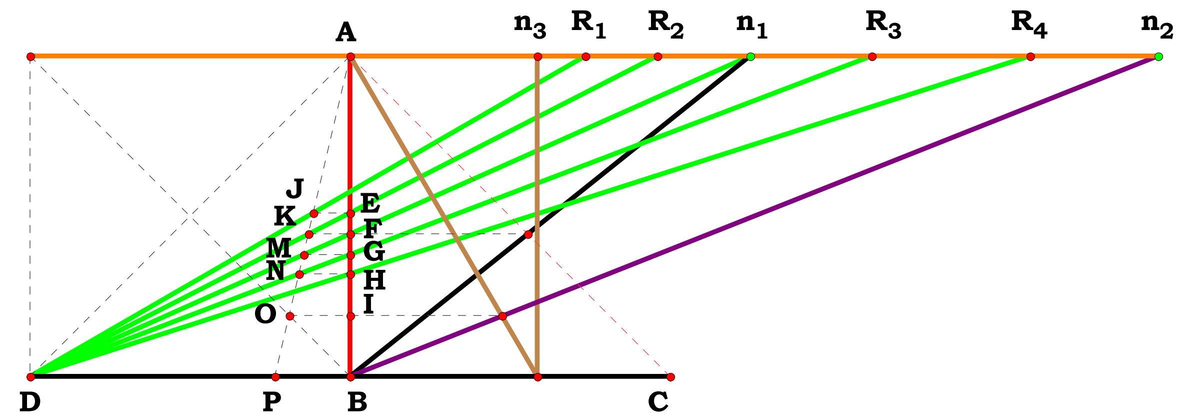
$N_3 = 0.58657$

$R_1 = 0.73596$

$R_2 = 0.95897$

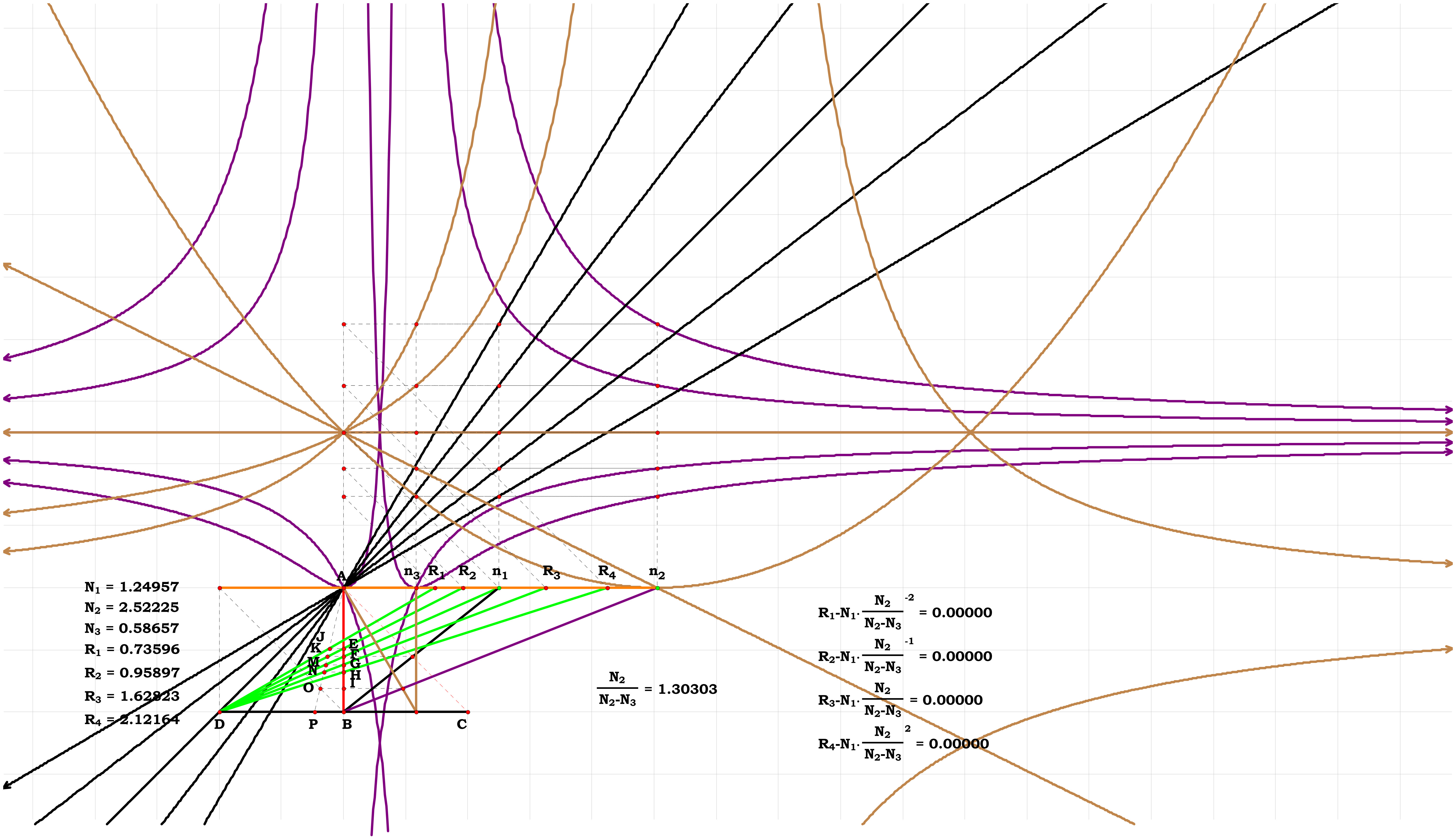
$R_3 = 1.62823$

$R_4 = 2.12164$



$$R_1 - \frac{N_1 \cdot (N_2 - N_3)^2}{N_2^{\,2}} = 0 \qquad R_2 - \frac{N_1 \cdot (N_2 - N_3)}{N_2} = 0 \qquad R_3 - \frac{N_1 \cdot N_2}{N_2 - N_3} = 0 \qquad R_4 - \frac{N_1 \cdot N_2^{\,2}}{(N_2 - N_3)^2} = 0$$

$$R_1 - N_1 \cdot \left(\frac{N_2}{N_2 - N_3}\right)^{-2} = 0 \qquad R_2 - N_1 \cdot \left(\frac{N_2}{N_2 - N_3}\right)^{-1} = 0 \qquad R_3 - N_1 \cdot \frac{N_2}{N_2 - N_3} = 0 \qquad R_4 - N_1 \cdot \left(\frac{N_2}{N_2 - N_3}\right)^2 = 0$$

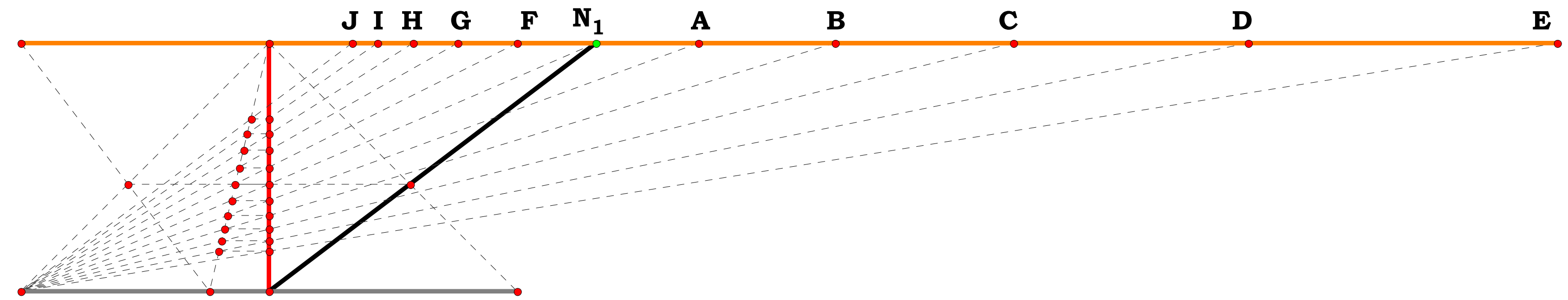


$N_1 = 1.24957$
$N_2 = 2.52225$
$N_3 = 0.58657$
$R_1 = 0.73596$
$R_2 = 0.95897$
$R_3 = 1.62823$
$R_4 = 2.12164$
A
n_3
R_1
R_2
n_1
R_3
R_4
n_2
J
K
M
N
O
E
F
G
H
I
D
P
B
C
$\frac{N_2}{N_2 - N_3} = 1.30303$
$R_1 - N_1 \cdot \left(\frac{N_2}{N_2 - N_3}\right)^{-2} = 0.00000$
$R_2 - N_1 \cdot \left(\frac{N_2}{N_2 - N_3}\right)^{-1} = 0.00000$
$R_3 - N_1 \cdot \frac{N_2}{N_2 - N_3} = 0.00000$
$R_4 - N_1 \cdot \left(\frac{N_2}{N_2 - N_3}\right)^{2} = 0.00000$

081212

$AB := 1$

$N_1 := 1.47934$



$N_1 = 1.31554$

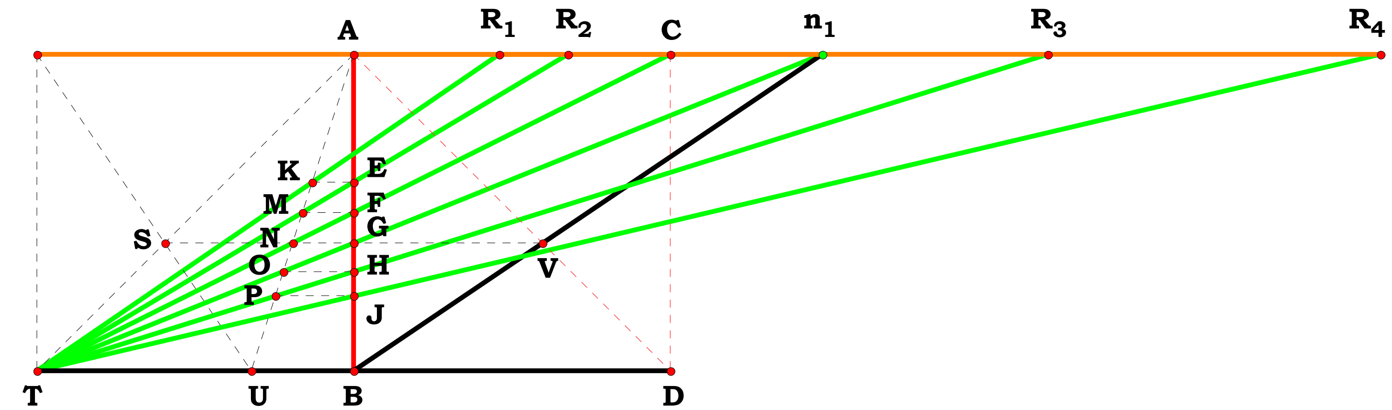
$A = 1.73065$
$B = 2.27675$
$C = 2.99516$
$D = 3.94026$
$E = 5.18358$

$F = 1.00000$
$G = 0.76014$
$H = 0.57782$
$I = 0.43922$
$J = 0.33387$

$N_1^2\text{-}A = 0.00000$
$N_1^3\text{-}B = 0.00000$
$N_1^4\text{-}C = 0.00000$
$N_1^5\text{-}D = 0.00000$
$N_1^6\text{-}E = 0.00000$

$N_1^0\text{-}F = 0.00000$
$N_1^{-1}\text{-}G = 0.00000$
$N_1^{-2}\text{-}H = 0.00000$
$N_1^{-3}\text{-}I = 0.00000$
$N_1^{-4}\text{-}J = 0.00000$

$N_1 = 1.47934$
$R_1 = 0.45694$
$R_2 = 0.67598$
$R_3 = 2.18845$
$R_4 = 3.23746$



$$BG := \frac{1}{N_1 + 1} \qquad GS := 1 - BG \qquad TU := \frac{1 - GS}{1 - BG}$$

$$BU := 1 - TU \qquad GN := BU \cdot (1 - BG) \qquad AC := \frac{1 - GN}{BG} - 1$$

$$AC = 1 \qquad BF := \frac{1}{1 + AC} \qquad FM := BU \cdot (1 - BF)$$

$$R_2 := \frac{1 - FM}{BF} - 1 \qquad BE := \frac{1}{1 + R_2} \qquad EK := BU \cdot (1 - BE)$$

$$R_1 := \frac{1 - EK}{BE} - 1 \qquad N_1 - \left(\frac{1}{BG} - 1\right) = 0$$

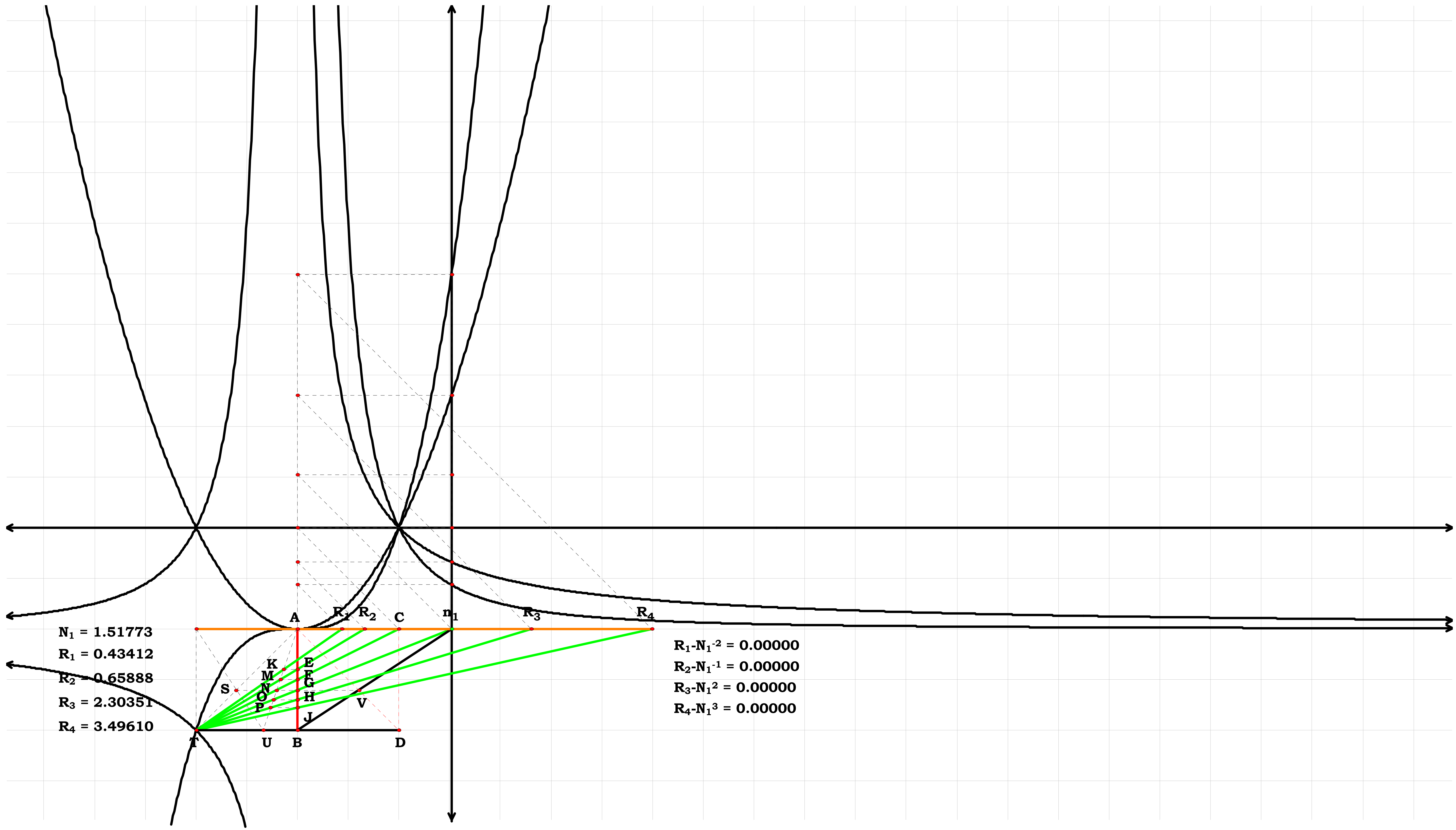
$$HO := \frac{N_1 \cdot BU}{N_1 + 1 - BU} \qquad BH := 1 - \frac{HO}{BU} \qquad R_3 := \frac{1}{BH} - 1$$

$$JP := \frac{R_3 \cdot BU}{R_3 + 1 - BU} \qquad BJ := 1 - \frac{JP}{BU} \qquad R_4 := \frac{1}{BJ} - 1$$

$$R_1 = 0.456945 \qquad R_2 = 0.675977 \qquad R_3 = 2.188447 \qquad R_4 = 3.237457$$

$$R_1 - \frac{1}{N_1^{\,2}} = 0 \qquad R_2 - \frac{1}{N_1} = 0 \qquad AB - AC = 0 \qquad N_1 - N_1 = 0 \qquad R_3 - N_1^{\,2} = 0 \qquad R_4 - N_1^{\,3} = 0$$

$$R_1 - N_1^{\,-2} = 0 \qquad R_2 - N_1^{\,-1} = 0 \qquad AB - N_1^{\,0} = 0 \qquad N_1 - N_1^{\,1} = 0 \qquad R_3 - N_1^{\,2} = 0 \qquad R_4 - N_1^{\,3} = 0$$



N₁ = 1.51773
R₁ = 0.43412
R₂ = 0.65888
R₃ = 2.30351
R₄ = 3.49610
R₁-N₁⁻² = 0.00000
R₂-N₁⁻¹ = 0.00000
R₃-N₁² = 0.00000
R₄-N₁³ = 0.00000
A
R₁
R₂
C
n₁
R₃
R₄
K
M
N
O
P
E
F
G
H
J
S
V
T
U
B
D

081312

$AB := 1$

$N_1 := 1.97774$

$N_2 := 1.45792$

$N_3 := 1.89462$

$BF := \frac{1}{N_1 + 1}$ $\quad JL := \frac{1}{N_2 + 1}$ $\quad KL := \frac{1}{N_3 + 1}$ $\quad BX := \frac{JL}{1 - JL}$

$BW := \frac{KL}{1 - KL}$ $\quad FP := BX \cdot (1 - BF)$ $\quad FO := BW \cdot (1 - BF)$

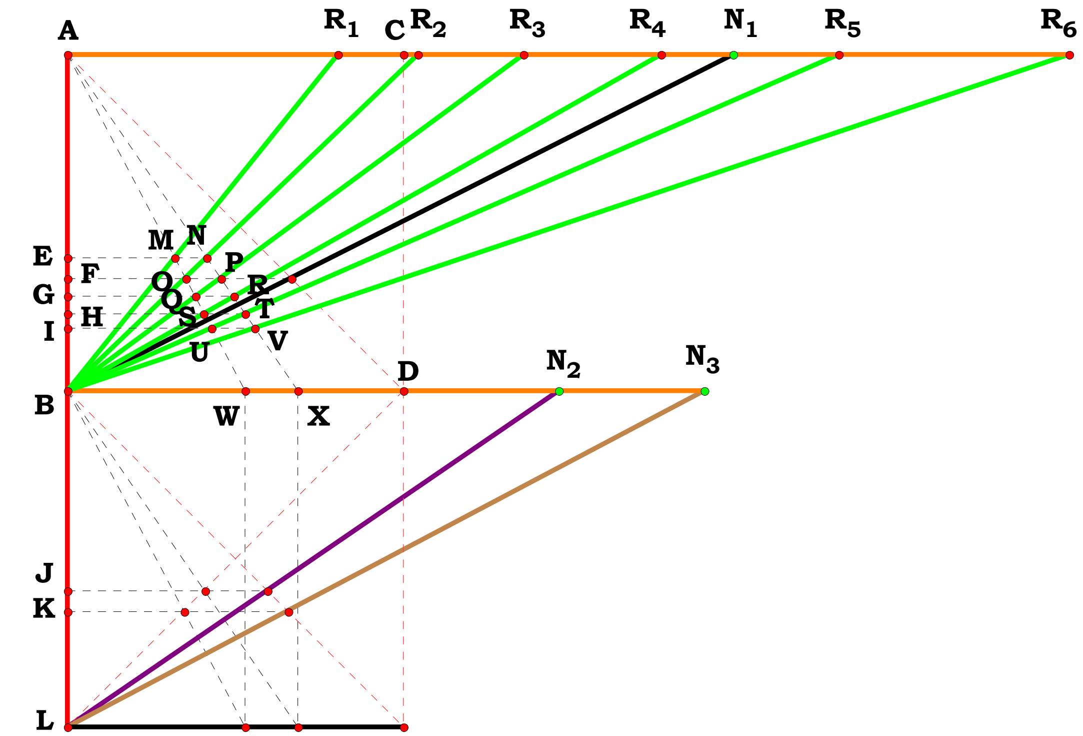
$R_3 := \frac{FP}{BF}$ $\quad R_2 := \frac{FO}{BF}$ $\quad BE := \frac{BX}{R_2 + BX}$ $\quad EM := BW \cdot (1 - BE)$

$R_1 := \frac{EM}{BE}$ $\quad BG := \frac{BW}{R_3 + BW}$ $\quad GR := BX \cdot (1 - BG)$ $\quad R_4 := \frac{GR}{BG}$

$BH := \frac{BW}{R_4 + BW}$ $\quad HT := BX \cdot (1 - BH)$ $\quad R_5 := \frac{HT}{BH}$ $\quad BI := \frac{BW}{R_5 + BW}$

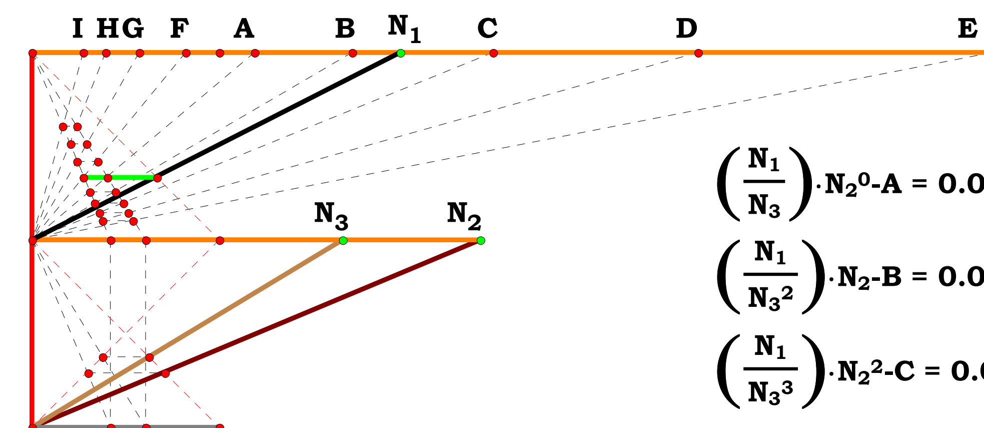
$IV := BX \cdot (1 - BI)$ $\quad R_6 := \frac{IV}{BI}$

$N_1 = 1.97774$
$N_2 = 1.45792$
$N_3 = 1.89462$
$R_1 = 0.80326$
$R_2 = 1.04387$
$R_3 = 1.35655$
$R_4 = 1.76289$
$R_5 = 2.29095$
$R_6 = 2.97718$



I reordered N_2 and N_3

.



$\left(\frac{N_1}{N_3}\right) \cdot N_2^0 - A = 0.00000$

$\left(\frac{N_1}{N_3^2}\right) \cdot N_2 - B = 0.00000$

$\left(\frac{N_1}{N_3^3}\right) \cdot N_2^2 - C = 0.00000$

$\left(\frac{N_1}{N_3^4}\right) \cdot N_2^3 - D = 0.00000$

$\left(\frac{N_1}{N_3^5}\right) \cdot N_2^4 - E = 0.00000$

$\left(\frac{N_1}{N_3^0}\right) \cdot N_2^{-1} - F = 0.00000$

$\left(\frac{N_1}{N_3^{-1}}\right) \cdot N_2^{-2} - G = 0.00000$

$\left(\frac{N_1}{N_3^{-2}}\right) \cdot N_2^{-3} - H = 0.00000$

$\left(\frac{N_1}{N_3^{-3}}\right) \cdot N_2^{-4} - I = 0.00000$

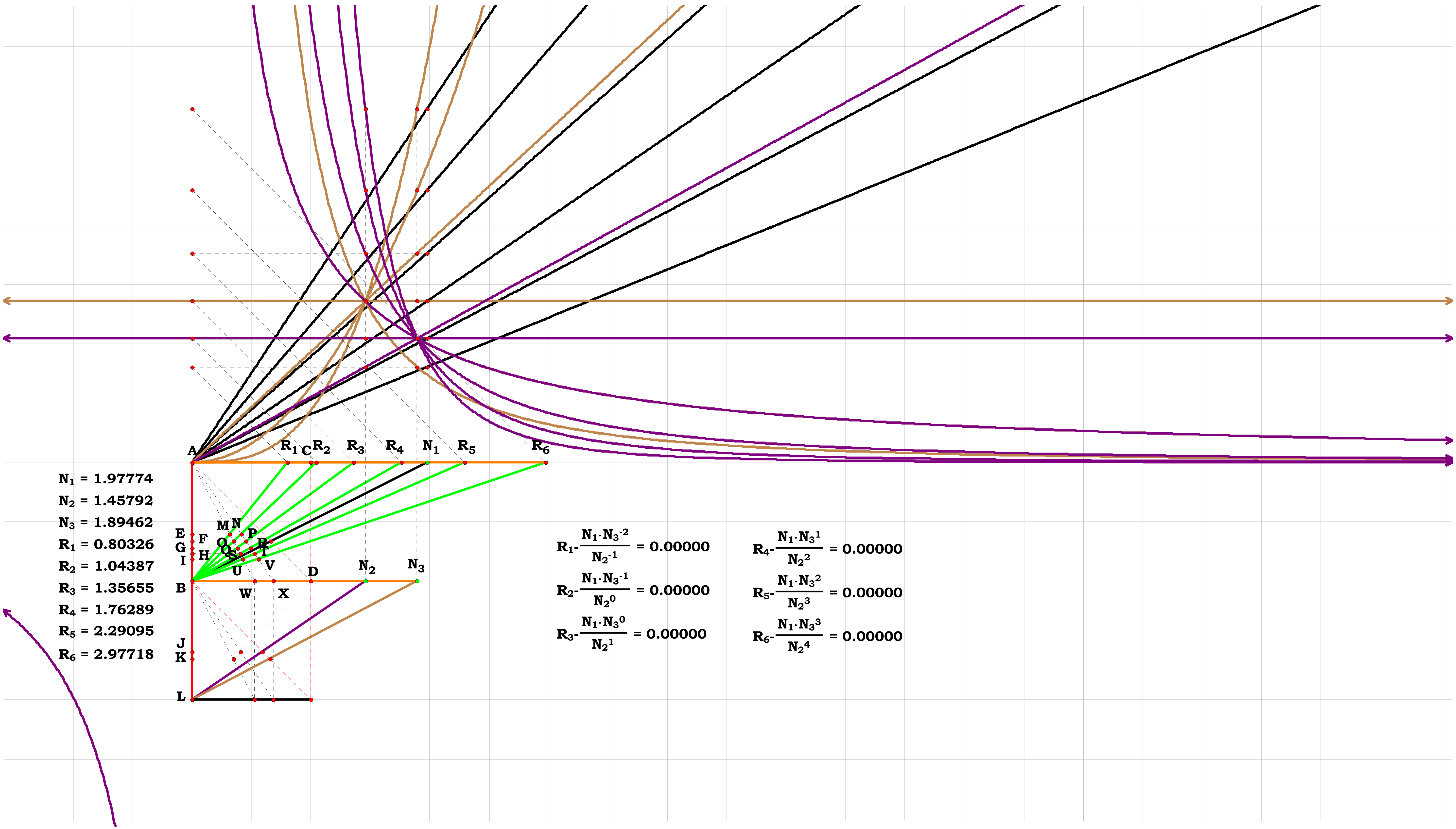
$N_1 = 1.95987$	$A = 1.18227$	$F = 0.81960$
$N_2 = 2.39124$	$B = 1.70541$	$G = 0.56819$
$N_3 = 1.65771$	$C = 2.46005$	$H = 0.39389$
	$D = 3.54859$	$I = 0.27306$
	$E = 5.11881$	

$R_1 - \frac{N_1 \cdot N_2}{N_3^2} = 0$ $\quad R_2 - \frac{N_1}{N_3} = 0$ $\quad R_3 - \frac{N_1}{N_2} = 0$

$R_4 - \frac{N_1 \cdot N_3}{N_2^2} = 0$ $\quad R_5 - \frac{N_1 \cdot N_3^2}{N_2^3} = 0$ $\quad R_6 - \frac{N_1 \cdot N_3^3}{N_2^4} = 0$

from which one can derive:

$R_1 - \frac{N_1}{N_2^{-1}} \cdot N_3^{-2} = 0$ $\quad R_2 - \frac{N_1}{N_2^0} \cdot N_3^{-1} = 0$ $\quad R_3 - \frac{N_1}{N_2^1} \cdot N_3^0 = 0$ $\quad R_4 - \frac{N_1}{N_2^2} \cdot N_3^1 = 0$ $\quad R_5 - \frac{N_1}{N_2^3} \cdot N_3^2 = 0$ $\quad R_6 - \frac{N_1}{N_2^4} \cdot N_3^3 = 0$


A
R1
C
R2
R3
R4
N1
R5
R6
N1 = 1.97774
N2 = 1.45792
N3 = 1.89462
R1 = 0.80326
R2 = 1.04387
R3 = 1.35655
R4 = 1.76289
R5 = 2.29095
R6 = 2.97718
E
F
G
H
I
M
N
O
P
Q
R
S
T
U
V
B
D
N2
N3
W
X
J
K
L
$R_1 - \frac{N_1 \cdot N_3^{-2}}{N_2^{-1}} = 0.00000$
$R_2 - \frac{N_1 \cdot N_3^{-1}}{N_2^{0}} = 0.00000$
$R_3 - \frac{N_1 \cdot N_3^{0}}{N_2^{1}} = 0.00000$
$R_4 - \frac{N_1 \cdot N_3^{1}}{N_2^{2}} = 0.00000$
$R_5 - \frac{N_1 \cdot N_3^{2}}{N_2^{3}} = 0.00000$
$R_6 - \frac{N_1 \cdot N_3^{3}}{N_2^{4}} = 0.00000$

081712

$AB := 1$

$N_1 := 1.53478$

$N_2 := -0.54429$

$$BE := \frac{N_2 + 1}{N_1 + N_2 + 1} \qquad EK := \frac{N_1 \cdot N_2}{N_1 + 1 + N_2} \qquad R_1 := \frac{EK}{BE}$$

$$BJ := \frac{N_2 + 1}{N_2 + 1 + R_1} \qquad JP := \frac{R_1 \cdot N_2}{R_1 + 1 + N_2} \qquad R_2 := \frac{JP}{BJ}$$

$$BF := \frac{N_2 + 1}{N_2 + 1 + R_2} \qquad FM := \frac{R_2 \cdot N_2}{R_2 + 1 + N_2} \qquad R_3 := \frac{FM}{BF}$$

$$BH := \frac{N_2 + 1}{N_2 + 1 + R_3} \qquad HO := \frac{R_3 \cdot N_2}{R_3 + 1 + N_2} \qquad R_4 := \frac{HO}{BH}$$

$$BG := \frac{N_2 + 1}{N_2 + 1 + R_4} \qquad GN := \frac{R_4 \cdot N_2}{R_4 + 1 + N_2} \qquad R_5 := \frac{GN}{BG}$$

$R_1 = -1.833107 \qquad R_2 = 2.189423 \qquad R_3 = -2.614999$

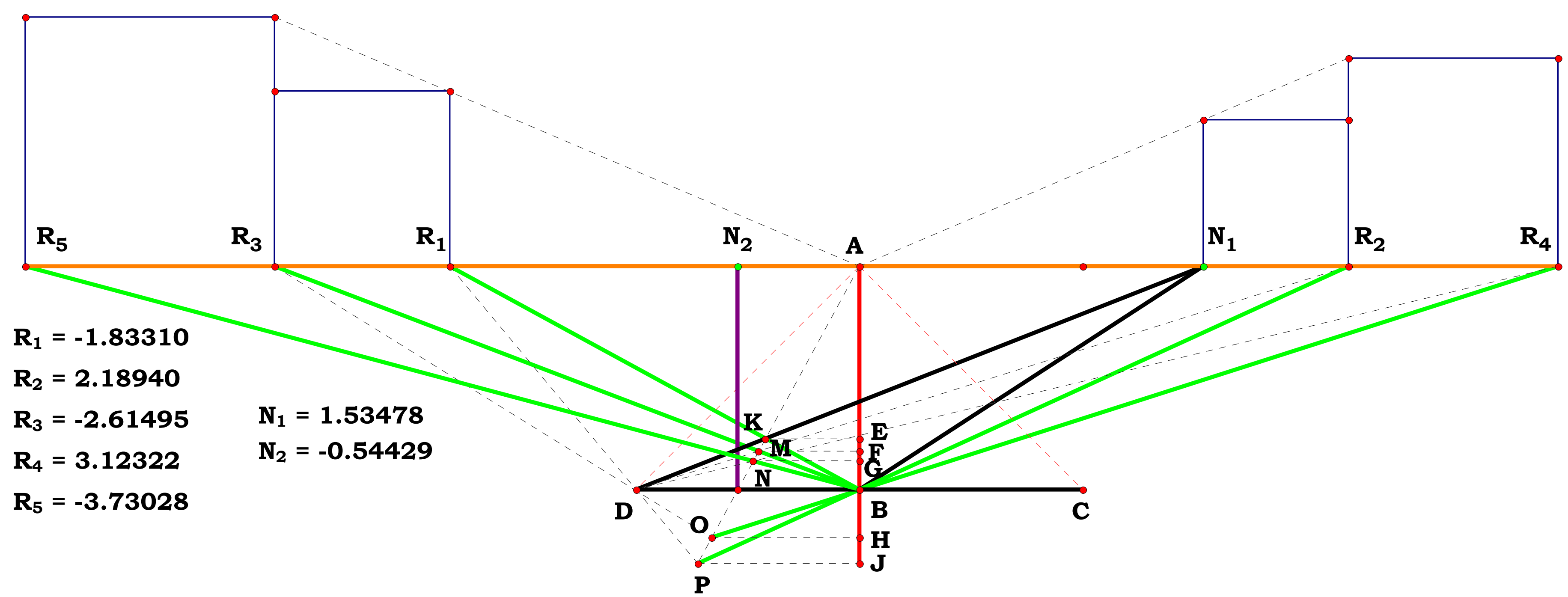
$R_4 = 3.123297 \qquad R_5 = -3.730398$

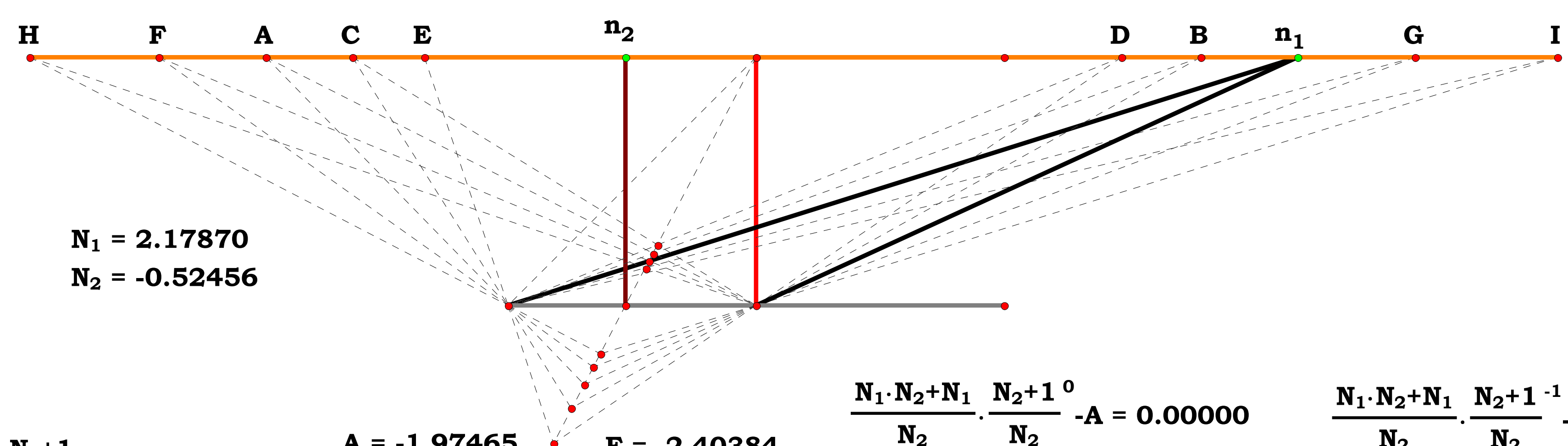
$$R_1 - \frac{N_1 \cdot N_2}{N_2 + 1} = 0 \qquad R_2 - \frac{N_2 \cdot R_1}{N_2 + 1} = 0 \qquad R_3 - \frac{N_2 \cdot R_2}{N_2 + 1} = 0$$

$$R_4 - \frac{N_2 \cdot R_3}{N_2 + 1} = 0 \qquad R_5 - \frac{N_2 \cdot R_4}{N_2 + 1} = 0$$

$$R_1 - \left(\frac{N_2}{N_2 + 1}\right)^1 \cdot N_1 = 0 \qquad R_2 - \left(\frac{N_2}{N_2 + 1}\right)^2 \cdot N_1 = 0$$

$$R_3 - \left(\frac{N_2}{N_2 + 1}\right)^3 \cdot N_1 = 0 \qquad R_4 - \left(\frac{N_2}{N_2 + 1}\right)^4 \cdot N_1 = 0 \qquad R_5 - \left(\frac{N_2}{N_2 + 1}\right)^5 \cdot N_1 = 0$$





$$\frac{N_2+1}{N_2} = -0.90634$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} = -1.97465$$

A = -1.97465
B = 1.78970
C = -1.62208
D = 1.47016
E = -1.33247

F = -2.40384
G = 2.65225
H = -2.92632
I = 3.22872

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot {\frac{N_2+1}{N_2}}^{0} - A = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot {\frac{N_2+1}{N_2}}^{1} - B = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot {\frac{N_2+1}{N_2}}^{2} - C = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot {\frac{N_2+1}{N_2}}^{3} - D = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot {\frac{N_2+1}{N_2}}^{4} - E = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot {\frac{N_2+1}{N_2}}^{-1} - N_1 = 0.00000$$

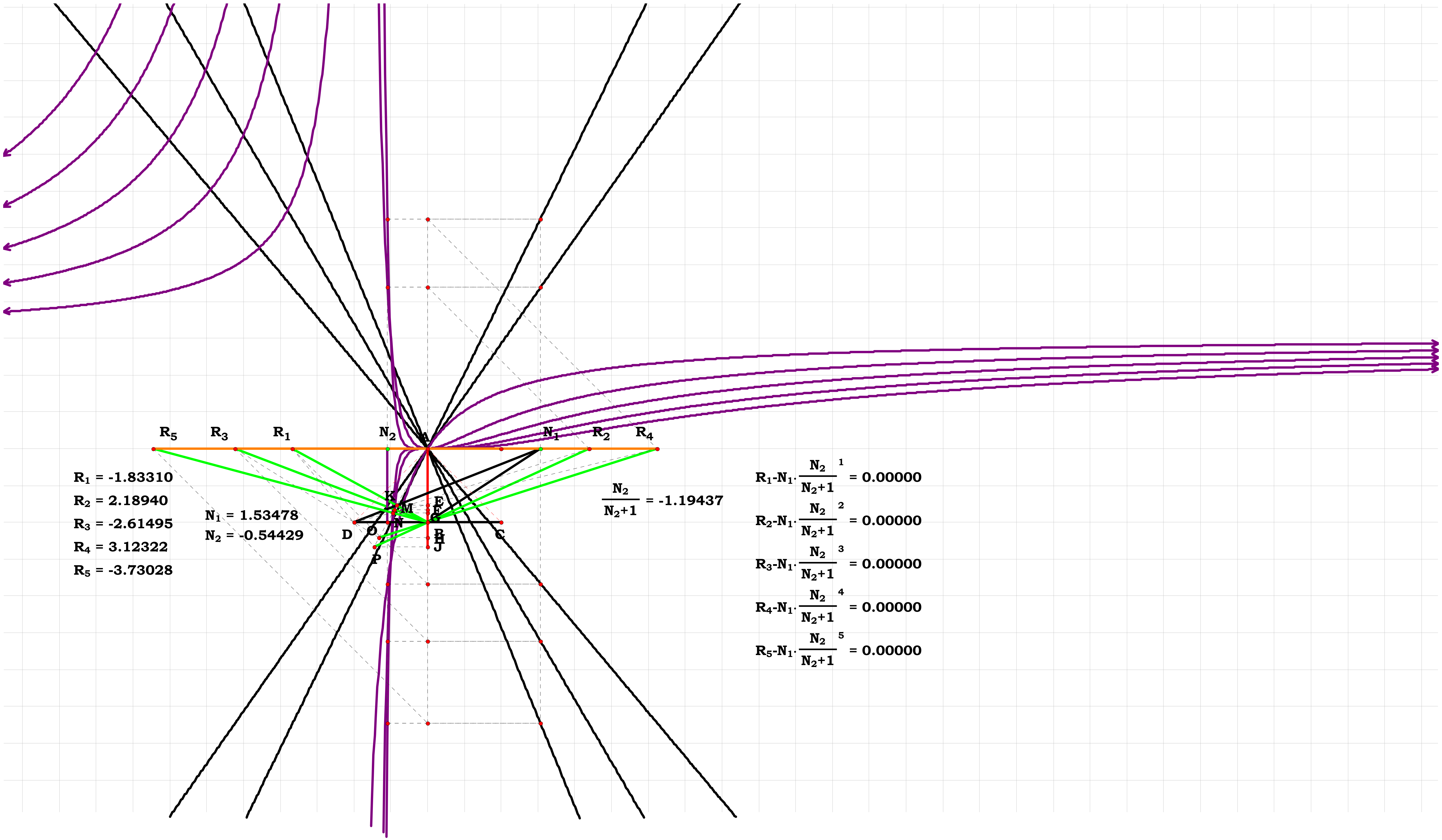
$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot {\frac{N_2+1}{N_2}}^{-2} - F = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot {\frac{N_2+1}{N_2}}^{-3} - G = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot {\frac{N_2+1}{N_2}}^{-4} - H = 0.00000$$

$$\frac{N_1 \cdot N_2+N_1}{N_2} \cdot {\frac{N_2+1}{N_2}}^{-5} - I = 0.00000$$

Writing these out does have an adantage!



R5
R3
R1
N2
A
N1
R2
R4
K
M
E
F
D
O
N
G
B
H
J
C
P
R1 = -1.83310
R2 = 2.18940
R3 = -2.61495
R4 = 3.12322
R5 = -3.73028
N1 = 1.53478
N2 = -0.54429
$\frac{N_2}{N_2+1} = -1.19437$
$R_1 - N_1 \cdot \frac{N_2}{N_2+1}^{1} = 0.00000$
$R_2 - N_1 \cdot \frac{N_2}{N_2+1}^{2} = 0.00000$
$R_3 - N_1 \cdot \frac{N_2}{N_2+1}^{3} = 0.00000$
$R_4 - N_1 \cdot \frac{N_2}{N_2+1}^{4} = 0.00000$
$R_5 - N_1 \cdot \frac{N_2}{N_2+1}^{5} = 0.00000$

090912-1

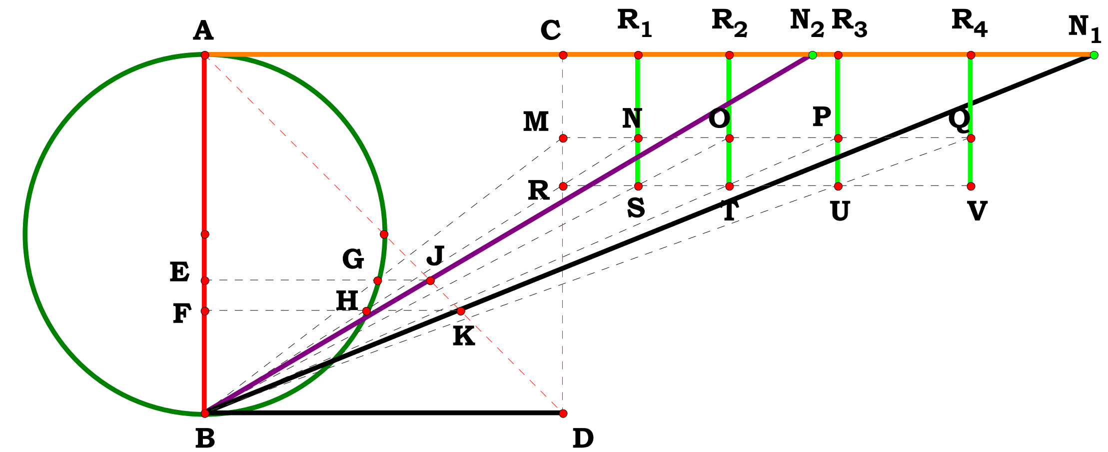
$AB := 1$

$N_1 := 2.47834$

$N_2 := 1.69523$

Here, I take the square root output of both variables and use them to project to the unit perpendicular tail to project two parallels upon which I construct the recursive series.

$N_1 = 2.47834$
$N_2 = 1.69523$
$R_1 = 1.20911$
$R_2 = 1.46194$
$R_3 = 1.76765$
$R_4 = 2.13728$



$$BE := \frac{1}{N_2+1} \quad BF := \frac{1}{N_1+1} \quad AE := AB - BE$$

$$AF := AB - BF \quad EG := \sqrt{AE \cdot BE} \quad FH := \sqrt{AF \cdot BF}$$

$$DM := \frac{BE}{EG} \quad DR := \frac{BF}{FH} \quad R_1 := \frac{FH}{BF} \cdot DM$$

$$R_2 := \frac{R_1}{DR} \cdot DM \quad R_3 := \frac{R_2}{DR} \cdot DM \quad R_4 := \frac{R_3}{DR} \cdot DM$$

$$R_1 - \frac{\sqrt{N_1}}{\sqrt{N_2}} = 0 \quad R_2 - \left(\frac{\sqrt{N_1}}{\sqrt{N_2}}\right)^2 = 0$$

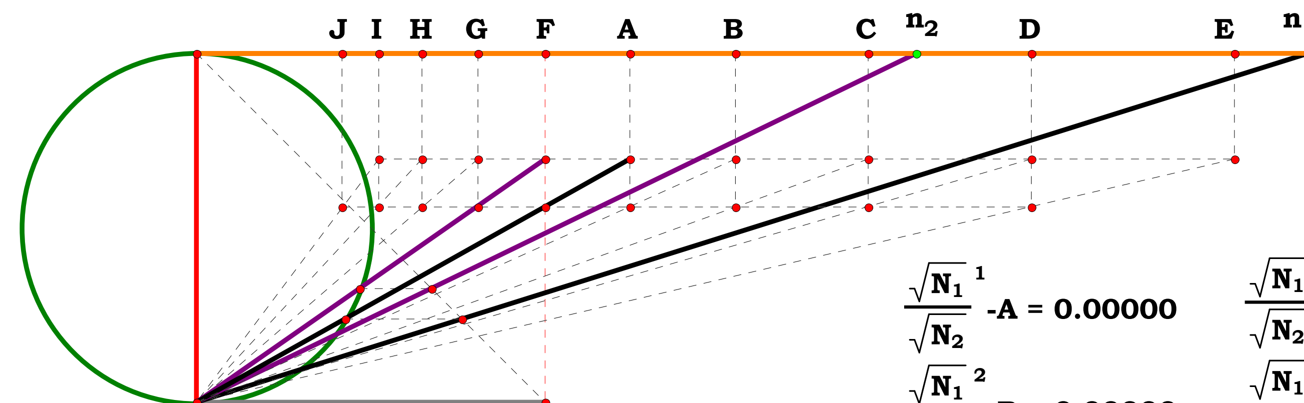
$$R_3 - \left(\frac{\sqrt{N_1}}{\sqrt{N_2}}\right)^3 = 0 \quad R_4 - \left(\frac{\sqrt{N_1}}{\sqrt{N_2}}\right)^4 = 0$$

$R_1 = 1.209111$

$R_2 = 1.461949$

$R_3 = 1.767659$

$R_4 = 2.137295$



$$\frac{\sqrt{N_1}}{\sqrt{N_2}} = 1.24338$$

$N_1 = 3.18458$

$N_2 = 2.05988$

A = 1.24338	F = 1.00000
B = 1.54601	G = 0.80426
C = 1.92228	H = 0.64683
D = 2.39013	I = 0.52022
E = 2.97185	J = 0.41839

$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{1} \text{-A} = 0.00000 \qquad \frac{\sqrt{N_1}}{\sqrt{N_2}}^{0} \text{-F} = 0.00000$$

$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{2} \text{-B} = 0.00000 \qquad \frac{\sqrt{N_1}}{\sqrt{N_2}}^{-1} \text{-G} = 0.00000$$

$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{3} \text{-C} = 0.00000 \qquad \frac{\sqrt{N_1}}{\sqrt{N_2}}^{-2} \text{-H} = 0.00000$$

$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{4} \text{-D} = 0.00000 \qquad \frac{\sqrt{N_1}}{\sqrt{N_2}}^{-3} \text{-I} = 0.00000$$

$$\frac{\sqrt{N_1}}{\sqrt{N_2}}^{5} \text{-E} = 0.00000 \qquad \frac{\sqrt{N_1}}{\sqrt{N_2}}^{-4} \text{-J} = 0.00000$$

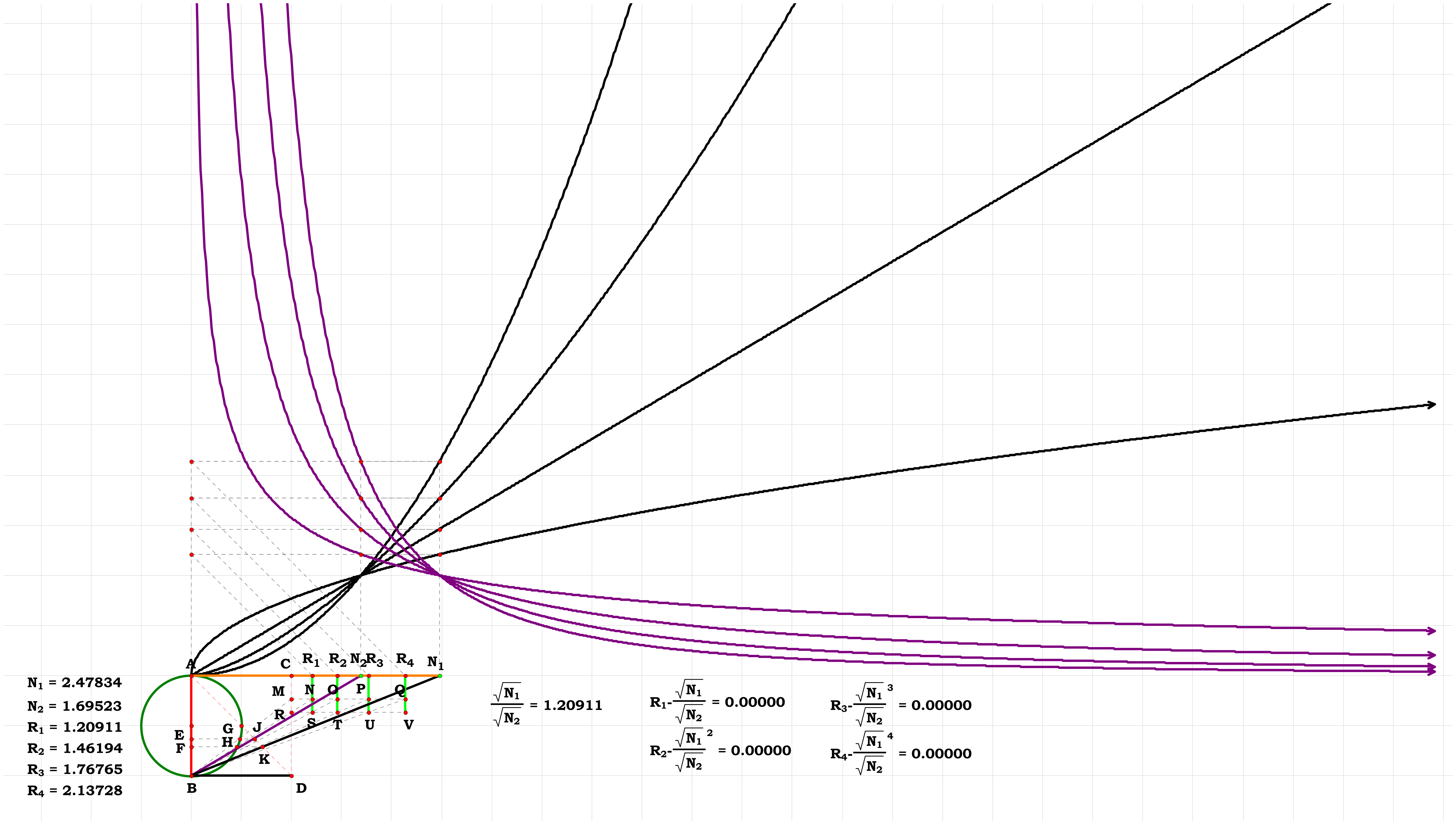
$N_1 := -2.47834$

$N_2 := -1.69523$

$$(N_1+1)\cdot\sqrt{\frac{N_1}{(N_1+1)^2}} = -1.574274i \qquad \sqrt{N_1} = 1.574274i$$

$$\frac{(N_1+1)\cdot\sqrt{\frac{N_1}{(N_1+1)^2}}}{(N_2+1)\cdot\sqrt{\frac{N_2}{(N_2+1)^2}}} = 1.209111 \qquad \frac{\sqrt{N_1}}{\sqrt{N_2}} = 1.209111$$

Now here is proof positive that current mathematical linguistic comprehension is grossly in error. Some math packages will not give this result, currently there is some dissent in the mathematical community. However, do the figure, there is absolutely no results for so called negative values. If your life depended upon accurate results, would this program satisfy you?



A
C
R1
R2
N2
R3
R4
N1
M
N
O
P
Q
R
S
T
U
V
E
F
G
H
J
K
B
D
N1 = 2.47834
N2 = 1.69523
R1 = 1.20911
R2 = 1.46194
R3 = 1.76765
R4 = 2.13728
$\frac{\sqrt{N_1}}{\sqrt{N_2}}$ = 1.20911
$R_1 - \frac{\sqrt{N_1}}{\sqrt{N_2}}$ = 0.00000
$R_2 - \frac{\sqrt{N_1}}{\sqrt{N_2}}^2$ = 0.00000
$R_3 - \frac{\sqrt{N_1}}{\sqrt{N_2}}^3$ = 0.00000
$R_4 - \frac{\sqrt{N_1}}{\sqrt{N_2}}^4$ = 0.00000

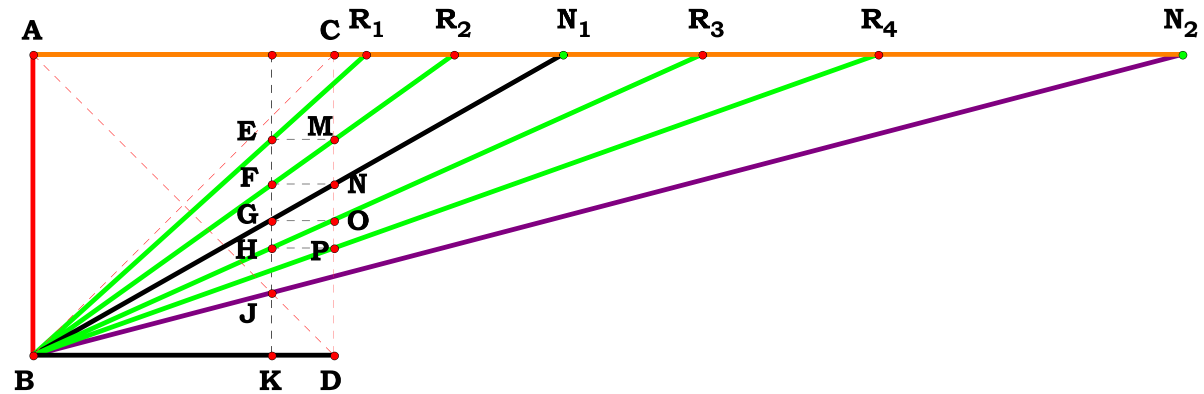
090912-2

$AB := 1$

$N_1 := 1.76087$

$N_2 := 3.81671$

$N_1 = 1.76087$
$N_2 = 3.81671$
$R_1 = 1.10562$
$R_2 = 1.39530$
$R_3 = 2.22223$
$R_4 = 2.80447$



$$DK := \frac{1}{N_2 + 1} \qquad FK := \frac{1}{N_1} \qquad R_2 := \frac{1 - DK}{FK}$$

$$EK := \frac{1}{R_2} \qquad R_1 := \frac{1 - DK}{EK} \qquad GK := FK \cdot (1 - DK)$$

$$R_3 := \frac{1}{GK} \qquad HK := GK \cdot (1 - DK) \qquad R_4 := \frac{1}{HK}$$

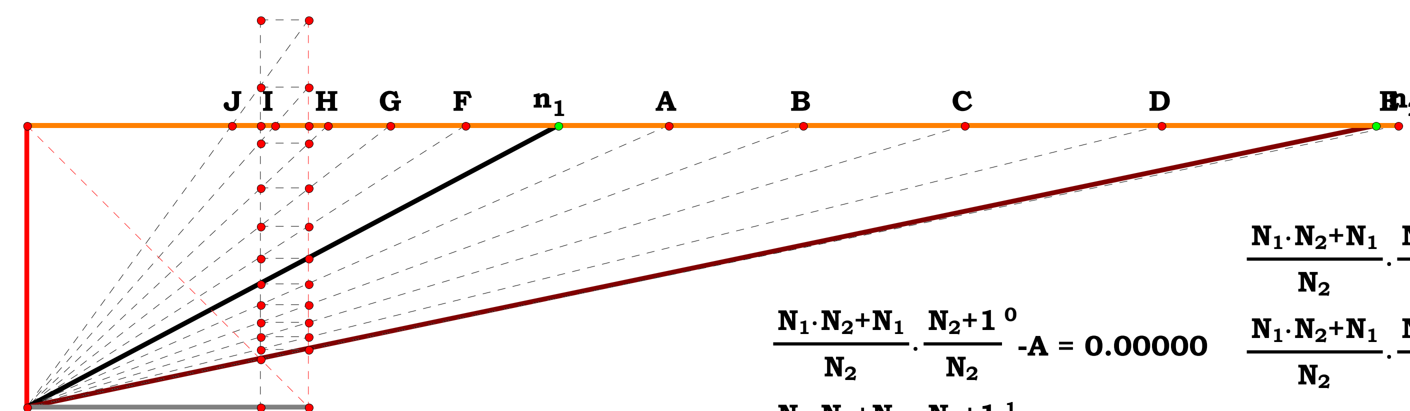
$R_1 = 1.105617 \qquad R_2 = 1.395295$

$R_3 = 2.222228 \qquad R_4 = 2.804465$

$$R_1 - \left[\frac{(N_2 + 1)}{N_2}\right]^{-2} \cdot N_1 = 0 \qquad R_2 - \left[\frac{(N_2 + 1)}{N_2}\right]^{-1} \cdot N_1 = 0$$

$$N_1 - \left[\frac{(N_2 + 1)}{N_2}\right]^{0} \cdot N_1 = 0 \qquad R_3 - \left[\frac{(N_2 + 1)}{N_2}\right]^{1} \cdot N_1 = 0$$

$$R_4 - \left[\frac{(N_2 + 1)}{N_2}\right]^{2} \cdot N_1 = 0$$



$$\frac{N_1 \cdot N_2 + N_1}{N_2} = 2.27629$$

$$\frac{N_2 + 1}{N_2} = 1.20903$$

$N_1 = 1.88273$
$N_2 = 4.78390$

A = 2.27629
B = 2.75211
C = 3.32740
D = 4.02294
E = 4.86387

F = 1.55722
G = 1.28799
H = 1.06530
I = 0.88112
J = 0.72878

$$\frac{N_1 \cdot N_2 + N_1}{N_2} \cdot \frac{N_2 + 1}{N_2}^{0} - A = 0.00000$$

$$\frac{N_1 \cdot N_2 + N_1}{N_2} \cdot \frac{N_2 + 1}{N_2}^{1} - B = 0.00000$$

$$\frac{N_1 \cdot N_2 + N_1}{N_2} \cdot \frac{N_2 + 1}{N_2}^{2} - C = 0.00000$$

$$\frac{N_1 \cdot N_2 + N_1}{N_2} \cdot \frac{N_2 + 1}{N_2}^{3} - D = 0.00000$$

$$\frac{N_1 \cdot N_2 + N_1}{N_2} \cdot \frac{N_2 + 1}{N_2}^{4} - E = 0.00000$$

$$\frac{N_1 \cdot N_2 + N_1}{N_2} \cdot \frac{N_2 + 1}{N_2}^{-1} - N_1 = 0.00000$$

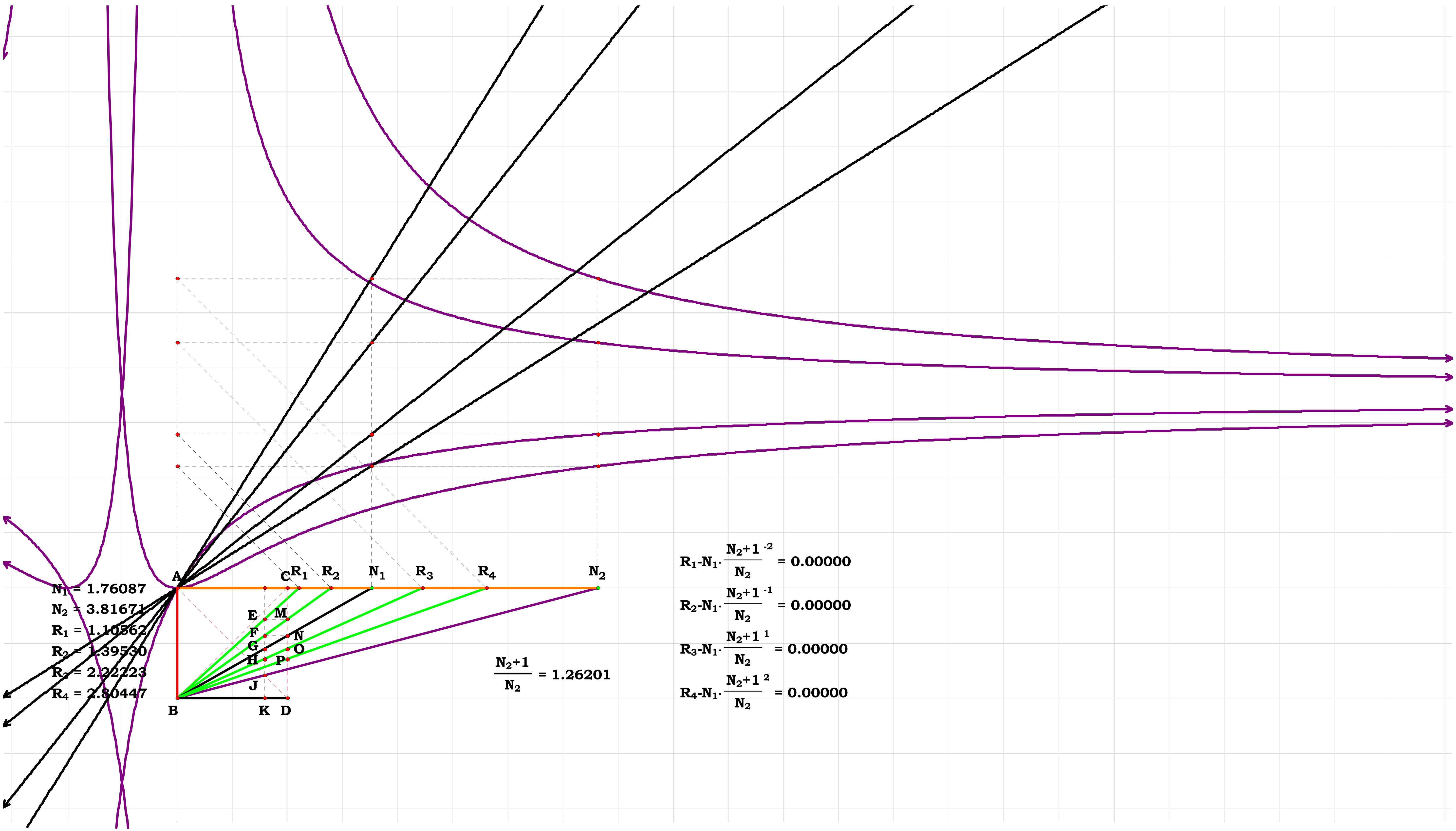
$$\frac{N_1 \cdot N_2 + N_1}{N_2} \cdot \frac{N_2 + 1}{N_2}^{-2} - F = 0.00000$$

$$\frac{N_1 \cdot N_2 + N_1}{N_2} \cdot \frac{N_2 + 1}{N_2}^{-3} - G = 0.00000$$

$$\frac{N_1 \cdot N_2 + N_1}{N_2} \cdot \frac{N_2 + 1}{N_2}^{-4} - H = 0.00000$$

$$\frac{N_1 \cdot N_2 + N_1}{N_2} \cdot \frac{N_2 + 1}{N_2}^{-5} - I = 0.00000$$

$$\frac{N_1 \cdot N_2 + N_1}{N_2} \cdot \frac{N_2 + 1}{N_2}^{-6} - J = 0.00000$$



N1 = 1.76087
N2 = 3.81671
R1 = 1.10562
R2 = 1.39530
R3 = 2.22223
R4 = 2.80447
A
C
R1
R2
N1
R3
R4
N2
E
M
F
N
G
O
H
P
J
B
K
D
$\frac{N_2+1}{N_2} = 1.26201$
$R_1-N_1\cdot\frac{N_2+1}{N_2}^{-2} = 0.00000$
$R_2-N_1\cdot\frac{N_2+1}{N_2}^{-1} = 0.00000$
$R_3-N_1\cdot\frac{N_2+1}{N_2}^{1} = 0.00000$
$R_4-N_1\cdot\frac{N_2+1}{N_2}^{2} = 0.00000$

090912-3

$$\frac{N_2\cdot(N_1+1)}{N_1\cdot(N_2+1)} = 1.10854$$

A = 1.10854
B = 1.22886
C = 1.36225
D = 1.51010
E = 1.67401
F = 0.90209
G = 0.81376
H = 0.73408
I = 0.66221

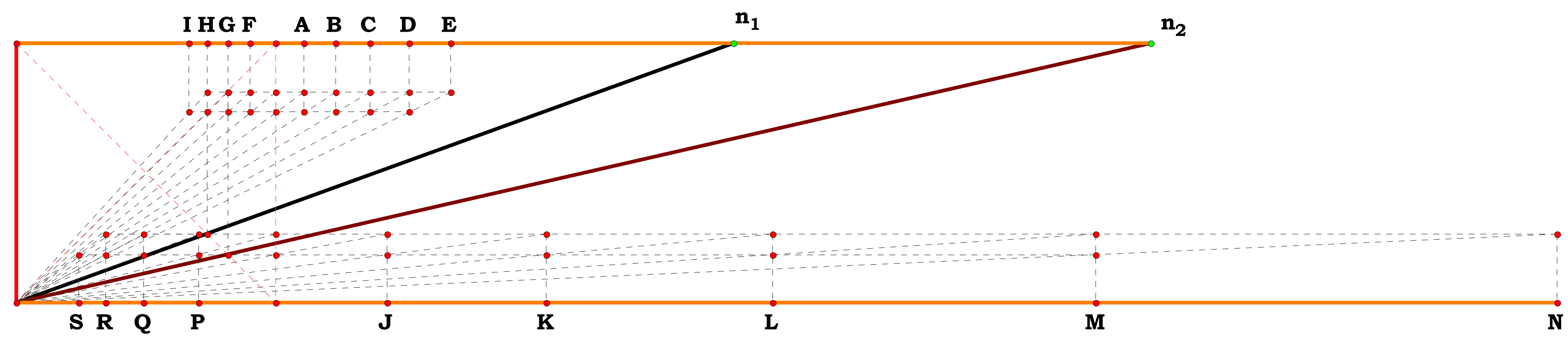
$$\left(\frac{N_2\cdot(N_1+1)}{N_1\cdot(N_2+1)}\right)^{1} - A = 0.00000$$
$$\left(\frac{N_2\cdot(N_1+1)}{N_1\cdot(N_2+1)}\right)^{2} - B = 0.00000$$
$$\left(\frac{N_2\cdot(N_1+1)}{N_1\cdot(N_2+1)}\right)^{3} - C = 0.00000$$
$$\left(\frac{N_2\cdot(N_1+1)}{N_1\cdot(N_2+1)}\right)^{4} - D = 0.00000$$
$$\left(\frac{N_2\cdot(N_1+1)}{N_1\cdot(N_2+1)}\right)^{5} - E = 0.00000$$

$$\left(\frac{N_2\cdot(N_1+1)}{N_1\cdot(N_2+1)}\right)^{-1} - F = 0.00000$$
$$\left(\frac{N_2\cdot(N_1+1)}{N_1\cdot(N_2+1)}\right)^{-2} - G = 0.00000$$
$$\left(\frac{N_2\cdot(N_1+1)}{N_1\cdot(N_2+1)}\right)^{-3} - H = 0.00000$$
$$\left(\frac{N_2\cdot(N_1+1)}{N_1\cdot(N_2+1)}\right)^{-4} - I = 0.00000$$

This plate demonstrates two series. One may also infer that for every plate I project from the bottom of the origin, I can make a different plate of it by projecting from the top origin so that each plate like this one could have a minimum of four demonstrations. One can, in fact, project anywhere on the origin wall by adding another variable to the equation as I have done on other plates.

If one works with Geometer's Sketchpad, they will quickly notice that unlike any other drawing prgram one may have, it does not have a zoom feature so one can work in small places. One either has to manually enlarge the figure, or one can print the figure to a PDF file and use the zoom feature of the reader. These print as vector graphics so one can zoom in as far as they like. My early drawings, a long time ago, were done in TommyCad, which one could zoom in as far as they like, however, it did not have motion in mind when that program was written, nor did it have the idea of writing up figures using equations.

One may also notice that where one starts a sequence from determines the resulting equation also. For example, these plates start the series from the unit perpendicular operational tail. I could have started the sequence from the operational tails of either variable as well, which would change the equation. One can even add a variable, as I have done in some plates, just to independently set the point of origine of the sequence itself.



$$\frac{N_2+1}{N_1+1} = 1.42764$$

$N_1 = 2.75971$
$N_2 = 4.36750$

J = 1.42764
K = 2.03815
L = 2.90973
M = 4.15404
N = 5.93046

P = 0.70046
Q = 0.49064
R = 0.34367
S = 0.24073

$$\left(\frac{N_2+1}{N_1+1}\right)^{1} - J = 0.00000$$
$$\left(\frac{N_2+1}{N_1+1}\right)^{2} - K = 0.00000$$
$$\left(\frac{N_2+1}{N_1+1}\right)^{3} - L = 0.00000$$
$$\left(\frac{N_2+1}{N_1+1}\right)^{4} - M = 0.00000$$
$$\left(\frac{N_2+1}{N_1+1}\right)^{5} - N = 0.00000$$

$$\left(\frac{N_2+1}{N_1+1}\right)^{-1} - P = 0.00000$$
$$\left(\frac{N_2+1}{N_1+1}\right)^{-2} - Q = 0.00000$$
$$\left(\frac{N_2+1}{N_1+1}\right)^{-3} - R = 0.00000$$
$$\left(\frac{N_2+1}{N_1+1}\right)^{-4} - S = 0.00000$$

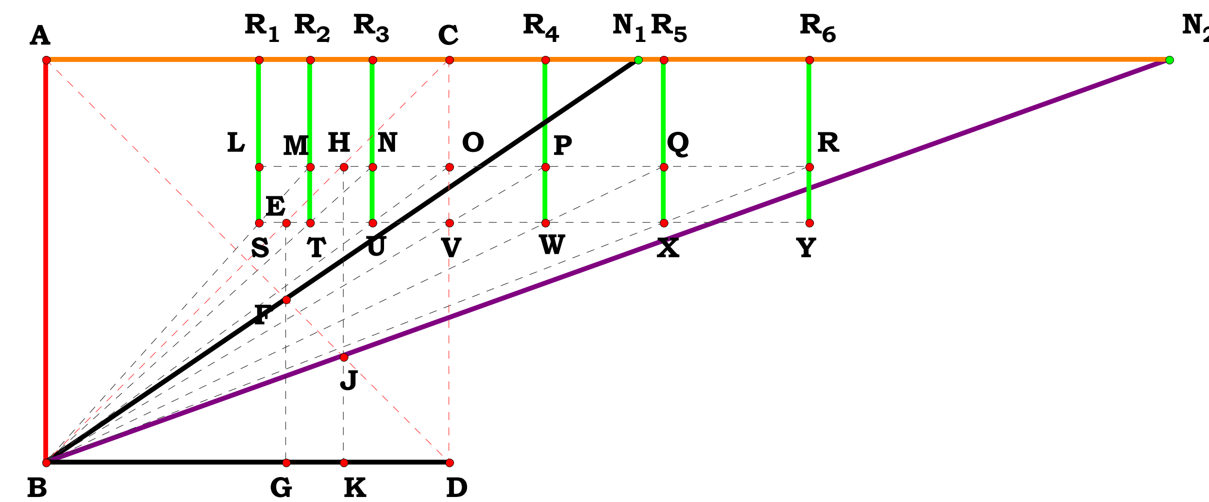
090912-3a

$AB := 1$

$N_1 := 1.46762$

$N_2 := 2.78261$

$N_1 = 1.46762$
$N_2 = 2.78261$
$R_1 = 0.52847$
$R_2 = 0.65365$
$R_3 = 0.80849$
$R_4 = 1.23688$
$R_5 = 1.52986$
$R_6 = 1.89225$



$DG := \frac{1}{N_1 + 1} \qquad DK := \frac{1}{N_2 + 1}$

$DO := 1 - DK \qquad DV := 1 - DG$

$R_4 := \frac{1}{DV} \cdot DO \qquad R_5 := \frac{R_4}{DV} \cdot DO \qquad R_6 := \frac{R_5}{DV} \cdot DO$

$R_3 := \frac{1}{DO} \cdot DV \qquad R_2 := \frac{R_3}{DO} \cdot DV \qquad R_1 := \frac{R_2}{DO} \cdot DV$

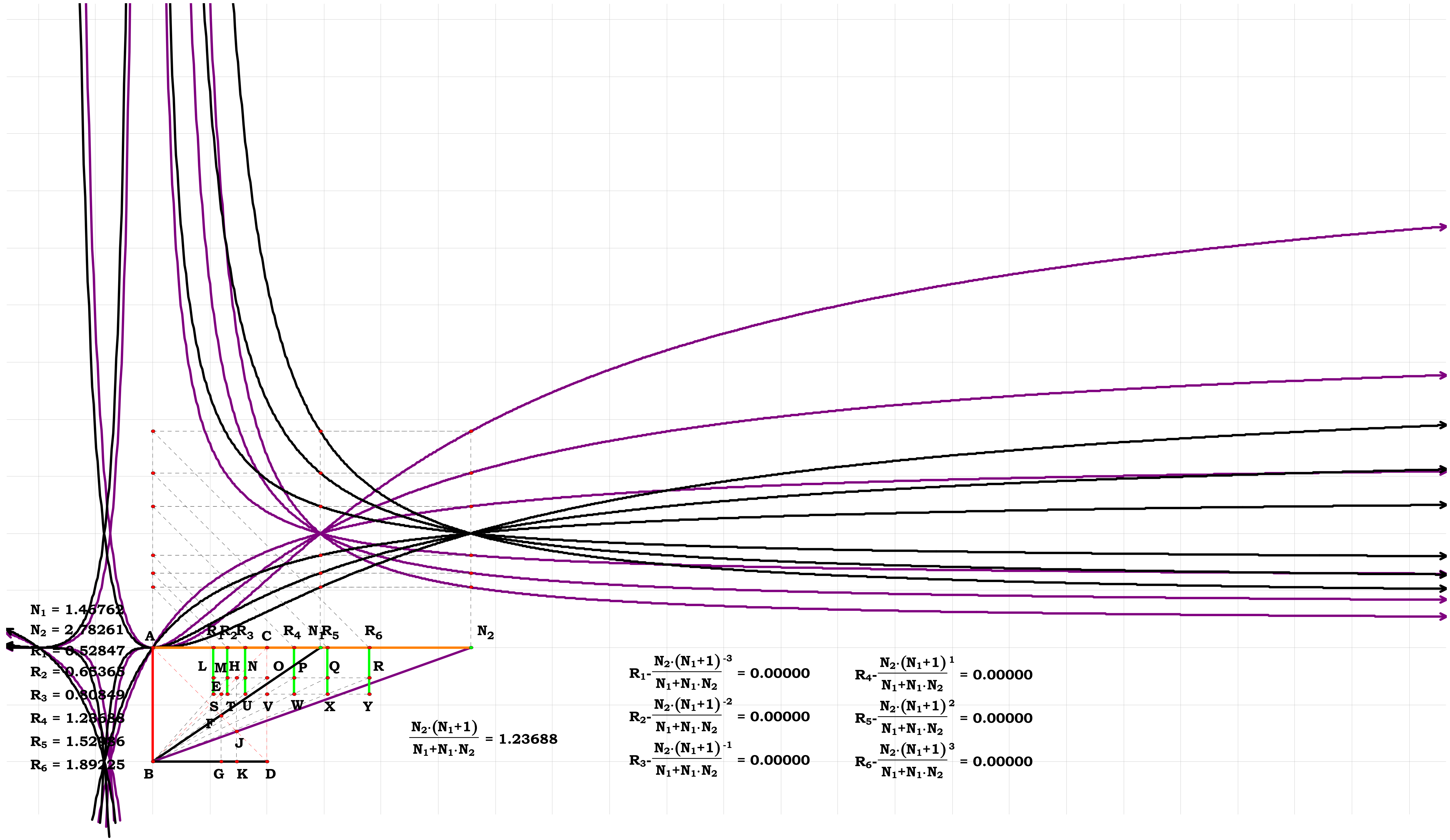
$R_4 - \frac{N_2 \cdot (N_1 + 1)}{N_1 + N_1 \cdot N_2} = 0 \qquad R_5 - \frac{N_2^{\,2} \cdot (N_1 + 1)^2}{N_1^{\,2} \cdot (N_2 + 1)^2} = 0 \qquad R_6 - \frac{N_2^{\,3} \cdot (N_1 + 1)^3}{N_1^{\,3} \cdot (N_2 + 1)^3} = 0$

$R_3 - \frac{N_1 \cdot (N_2 + 1)}{N_2 + N_1 \cdot N_2} = 0 \qquad R_2 - \frac{N_1^{\,2} \cdot (N_2 + 1)^2}{N_2^{\,2} \cdot (N_1 + 1)^2} = 0 \qquad R_1 - \frac{N_1^{\,3} \cdot (N_2 + 1)^3}{N_2^{\,3} \cdot (N_1 + 1)^3} = 0$

After reducing, reformating and reording:

$R_1 - \left[\frac{N_2 \cdot (N_1 + 1)}{N_1 + N_1 \cdot N_2}\right]^{-3} = 0 \qquad R_2 - \left[\frac{N_2 \cdot (N_1 + 1)}{N_1 + N_1 \cdot N_2}\right]^{-2} = 0 \qquad R_3 - \left[\frac{N_2 \cdot (N_1 + 1)}{N_1 + N_1 \cdot N_2}\right]^{-1} = 0 \qquad AB - \left[\frac{N_2 \cdot (N_1 + 1)}{N_1 + N_1 \cdot N_2}\right]^{0} = 0$

$R_4 - \left[\frac{N_2 \cdot (N_1 + 1)}{N_1 + N_1 \cdot N_2}\right]^{1} = 0 \qquad R_5 - \left[\frac{N_2 \cdot (N_1 + 1)}{N_1 + N_1 \cdot N_2}\right]^{2} = 0 \qquad R_6 - \left[\frac{N_2 \cdot (N_1 + 1)}{N_1 + N_1 \cdot N_2}\right]^{3} = 0$


N1 = 1.46762
N2 = 2.78261
R1 = 0.52847
R2 = 0.65365
R3 = 0.80849
R4 = 1.23688
R5 = 1.52986
R6 = 1.89225
A
B
C
D
E
F
G
H
J
K
L
M
N
O
P
Q
R
S
T
U
V
W
X
Y
N2
R1
R2
R3
R4
R5
R6
N2·(N1+1) / (N1+N1·N2) = 1.23688
R1 - N2·(N1+1)^-3 / (N1+N1·N2) = 0.00000
R2 - N2·(N1+1)^-2 / (N1+N1·N2) = 0.00000
R3 - N2·(N1+1)^-1 / (N1+N1·N2) = 0.00000
R4 - N2·(N1+1)^1 / (N1+N1·N2) = 0.00000
R5 - N2·(N1+1)^2 / (N1+N1·N2) = 0.00000
R6 - N2·(N1+1)^3 / (N1+N1·N2) = 0.00000

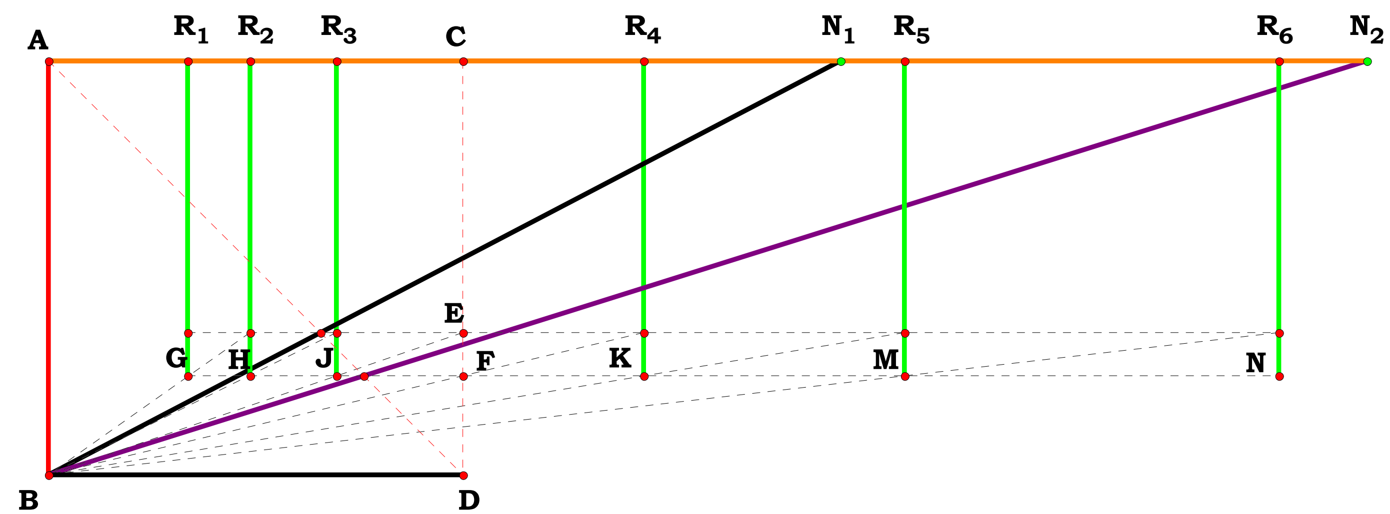
090912-3b

$AB := 1$

$N_1 := 1.90778$

$N_2 := 3.17746$

$N_1 = 1.90778$
$N_2 = 3.17746$
$R_1 = 0.33725$
$R_2 = 0.48451$
$R_3 = 0.69606$
$R_4 = 1.43665$
$R_5 = 2.06396$
$R_6 = 2.96518$



$$DE := \frac{1}{N_1 + 1} \qquad DF := \frac{1}{N_2 + 1}$$

$$R_4 := \frac{1}{DF} \cdot DE \qquad R_5 := \frac{R_4}{DF} \cdot DE \qquad R_6 := \frac{R_5}{DF} \cdot DE$$

$$R_3 := \frac{1}{DE} \cdot DF \qquad R_2 := \frac{R_3}{DE} \cdot DF \qquad R_1 := \frac{R_2}{DE} \cdot DF$$

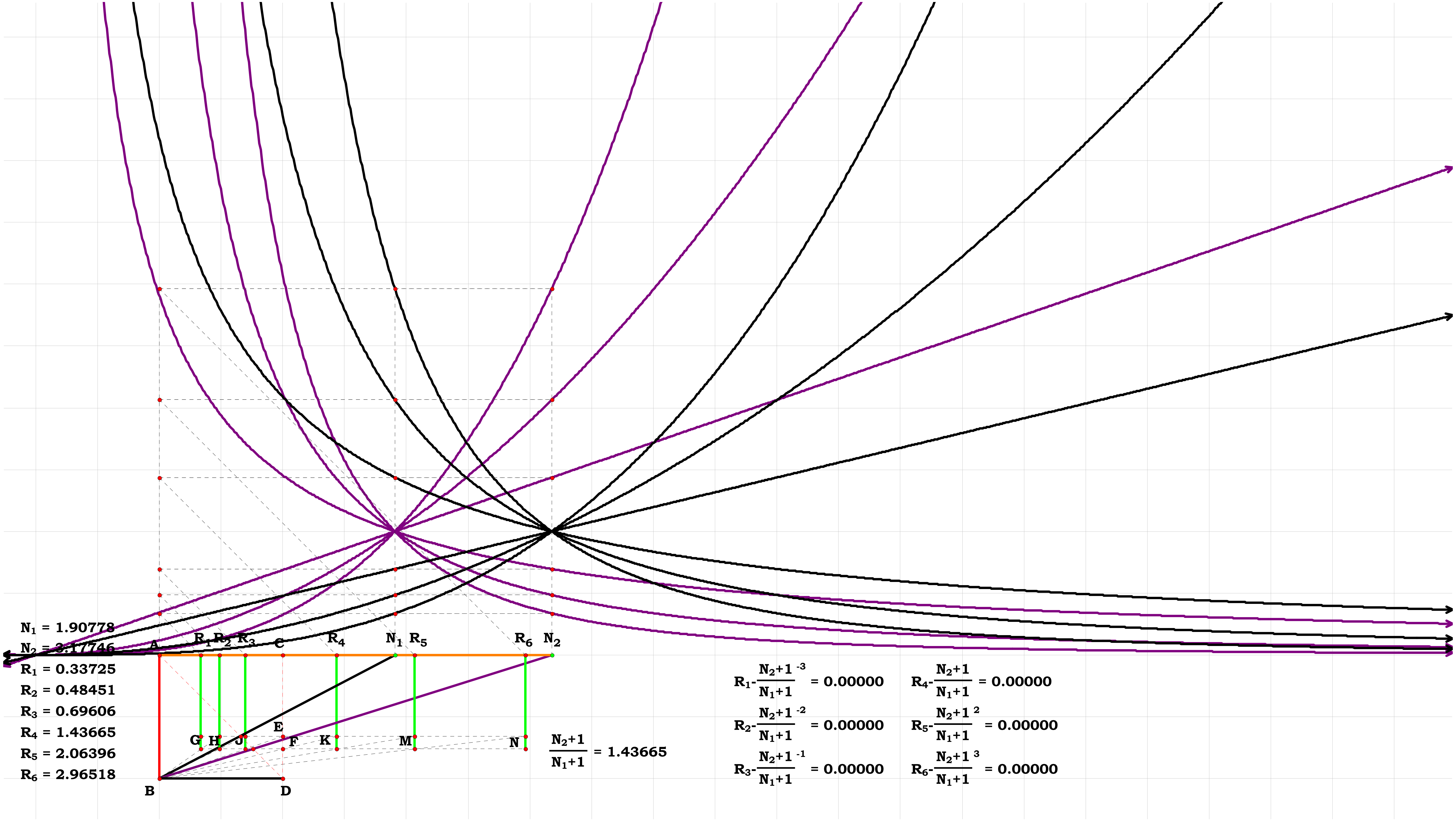
$$R_4 - \frac{N_2 + 1}{N_1 + 1} = 0 \qquad R_5 - \frac{(N_2 + 1)^2}{(N_1 + 1)^2} = 0 \qquad R_6 - \frac{(N_2 + 1)^3}{(N_1 + 1)^3} = 0$$

$$R_3 - \frac{N_1 + 1}{N_2 + 1} = 0 \qquad R_2 - \frac{(N_1 + 1)^2}{(N_2 + 1)^2} = 0 \qquad R_1 - \frac{(N_1 + 1)^3}{(N_2 + 1)^3} = 0$$

After reducing, reformating and reording:

$$R_1 - \left(\frac{N_2 + 1}{N_1 + 1}\right)^{-3} = 0 \qquad R_2 - \left(\frac{N_2 + 1}{N_1 + 1}\right)^{-2} = 0 \qquad R_3 - \left(\frac{N_2 + 1}{N_1 + 1}\right)^{-1} = 0 \qquad AB - \left(\frac{N_2 + 1}{N_1 + 1}\right)^{0} = 0$$

$$R_4 - \left(\frac{N_2 + 1}{N_1 + 1}\right)^{1} = 0 \qquad R_5 - \left[\frac{(N_2 + 1)}{(N_1 + 1)}\right]^{2} = 0 \qquad R_6 - \left[\frac{(N_2 + 1)}{(N_1 + 1)}\right]^{3} = 0$$



N_1 = 1.90778
N_2 = 3.17746
R_1 = 0.33725
R_2 = 0.48451
R_3 = 0.69606
R_4 = 1.43665
R_5 = 2.06396
R_6 = 2.96518
A R_1 R_2 R_3 C R_4 N_1 R_5 R_6 N_2
G H J E F K M N
B D
$\frac{N_2+1}{N_1+1}$ = 1.43665
$R_1-\frac{N_2+1}{N_1+1}^{-3}$ = 0.00000
$R_2-\frac{N_2+1}{N_1+1}^{-2}$ = 0.00000
$R_3-\frac{N_2+1}{N_1+1}^{-1}$ = 0.00000
$R_4-\frac{N_2+1}{N_1+1}$ = 0.00000
$R_5-\frac{N_2+1}{N_1+1}^{2}$ = 0.00000
$R_6-\frac{N_2+1}{N_1+1}^{3}$ = 0.00000

090912-4

This is identical to the last figure, however, the series is going to start from the units other operational tail.

Looking at an exponential series, one would not think that it had a point of origin, however: In regard to the point of origin for any exponential series, one can, by viewing the waves of a series, find the starting points, or root of any series, or in short, if one knows two or more waves of an exponential series, one can figure out as much of the series as they like from its root; especially if the root is other than the point of origin. If one had two consecutive points of a series, one could simply place a square on it and draw the coversion to the origin and then use squares to plot each of the series, etc.

$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2} = 0.83725$$

$$\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1} = 1.12397$$

A = 0.83725
B = 0.94105
C = 1.05771
D = 1.18884
E = 1.33622

F = 0.74490
G = 0.66274
H = 0.58964
I = 0.52461

$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2}\cdot\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1}^{0}-A = 0.00000$$

$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2}\cdot\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1}^{1}-B = 0.00000$$

$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2}\cdot\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1}^{2}-C = 0.00000$$

$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2}\cdot\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1}^{3}-D = 0.00000$$

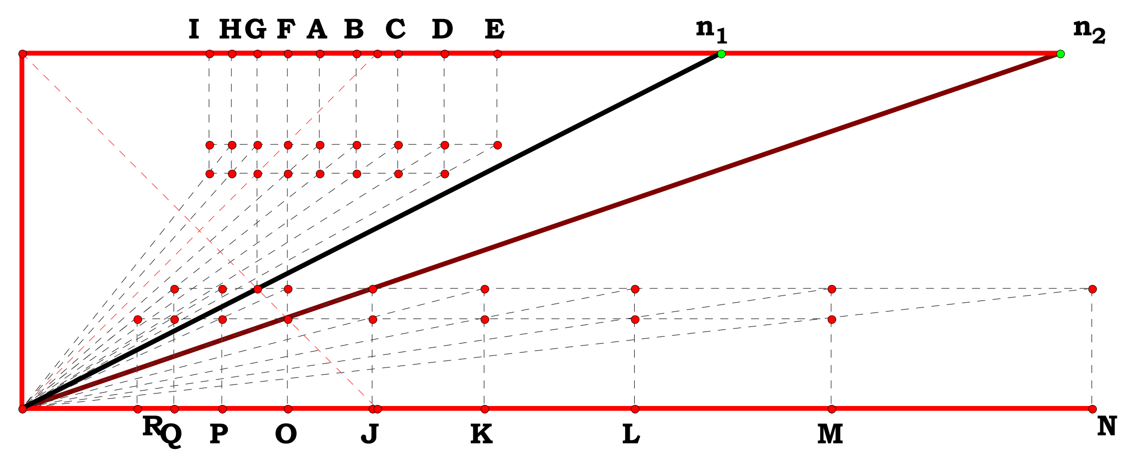
$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2}\cdot\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1}^{4}-E = 0.00000$$

$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2}\cdot\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1}^{-1}-F = 0.00000$$

$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2}\cdot\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1}^{-2}-G = 0.00000$$

$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2}\cdot\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1}^{-3}-H = 0.00000$$

$$\frac{N_2^2\cdot(N_1+1)}{N_1\cdot(N_2+1)^2}\cdot\frac{N_2\cdot(N_1+1)}{N_1\cdot N_2+N_1}^{-4}-I = 0.00000$$



$$\frac{N_2}{N_1+1} = 0.98482$$

$$\frac{N_2+1}{N_1+1} = 1.32208$$

N_1 = 1.96510
N_2 = 2.92011

J = 0.98482
K = 1.30202
L = 1.72138
M = 2.27580
N = 3.00879

O = 0.74490
P = 0.56343
Q = 0.42617
R = 0.32235

$$\frac{N_2}{N_1+1}\cdot\frac{N_2+1}{N_1+1}^{0}-J = 0.00000$$

$$\frac{N_2}{N_1+1}\cdot\frac{N_2+1}{N_1+1}^{1}-K = 0.00000$$

$$\frac{N_2}{N_1+1}\cdot\frac{N_2+1}{N_1+1}^{2}-L = 0.00000$$

$$\frac{N_2}{N_1+1}\cdot\frac{N_2+1}{N_1+1}^{3}-M = 0.00000$$

$$\frac{N_2}{N_1+1}\cdot\frac{N_2+1}{N_1+1}^{4}-N = 0.00000$$

$$\frac{N_2}{N_1+1}\cdot\frac{N_2+1}{N_1+1}^{-1}-O = 0.00000$$

$$\frac{N_2}{N_1+1}\cdot\frac{N_2+1}{N_1+1}^{-2}-P = 0.00000$$

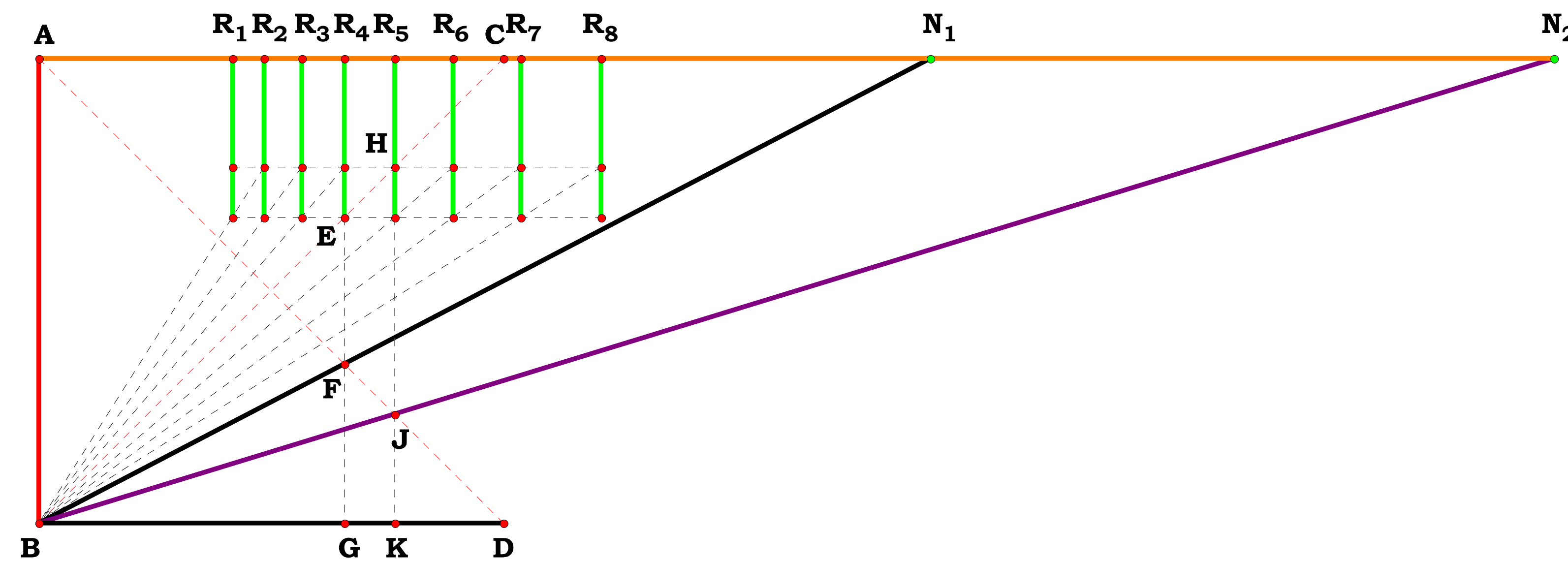
$$\frac{N_2}{N_1+1}\cdot\frac{N_2+1}{N_1+1}^{-3}-Q = 0.00000$$

$$\frac{N_2}{N_1+1}\cdot\frac{N_2+1}{N_1+1}^{-4}-R = 0.00000$$

090912-4A

$$AB := 1$$
$$N_1 := 1.91766$$
$$N_2 := 3.25942$$

$N_1 = 1.91766$
$N_2 = 3.25942$
$R_1 = 0.41646$
$R_2 = 0.48488$
$R_3 = 0.56453$
$R_4 = 0.65726$
$R_5 = 0.76523$
$R_6 = 0.89093$
$R_7 = 1.03728$
$R_8 = 1.20767$



$$EG := 1 - \frac{1}{N_1 + 1} \qquad HK := 1 - \frac{1}{N_2 + 1}$$

$$R_4 := EG \qquad R_5 := HK$$

$$R_6 := \frac{R_5}{EG} \cdot HK \qquad R_7 := \frac{R_6}{EG} \cdot HK \qquad R_8 := \frac{R_7}{EG} \cdot HK$$

$$R_3 := \frac{R_4}{HK} \cdot EG \qquad R_2 := \frac{R_3}{HK} \cdot EG \qquad R_1 := \frac{R_2}{HK} \cdot EG$$

$$R_4 - \frac{N_1}{N_1 + 1} = 0 \qquad R_5 - \frac{N_2}{N_2 + 1} = 0 \qquad \frac{HK}{EG} - \frac{N_2 \cdot (N_1 + 1)}{N_1 \cdot (N_2 + 1)} = 0 \qquad \frac{N_1}{N_1 + 1} \cdot \frac{N_2 \cdot (N_1 + 1)}{N_1 \cdot (N_2 + 1)} = 0.765226$$

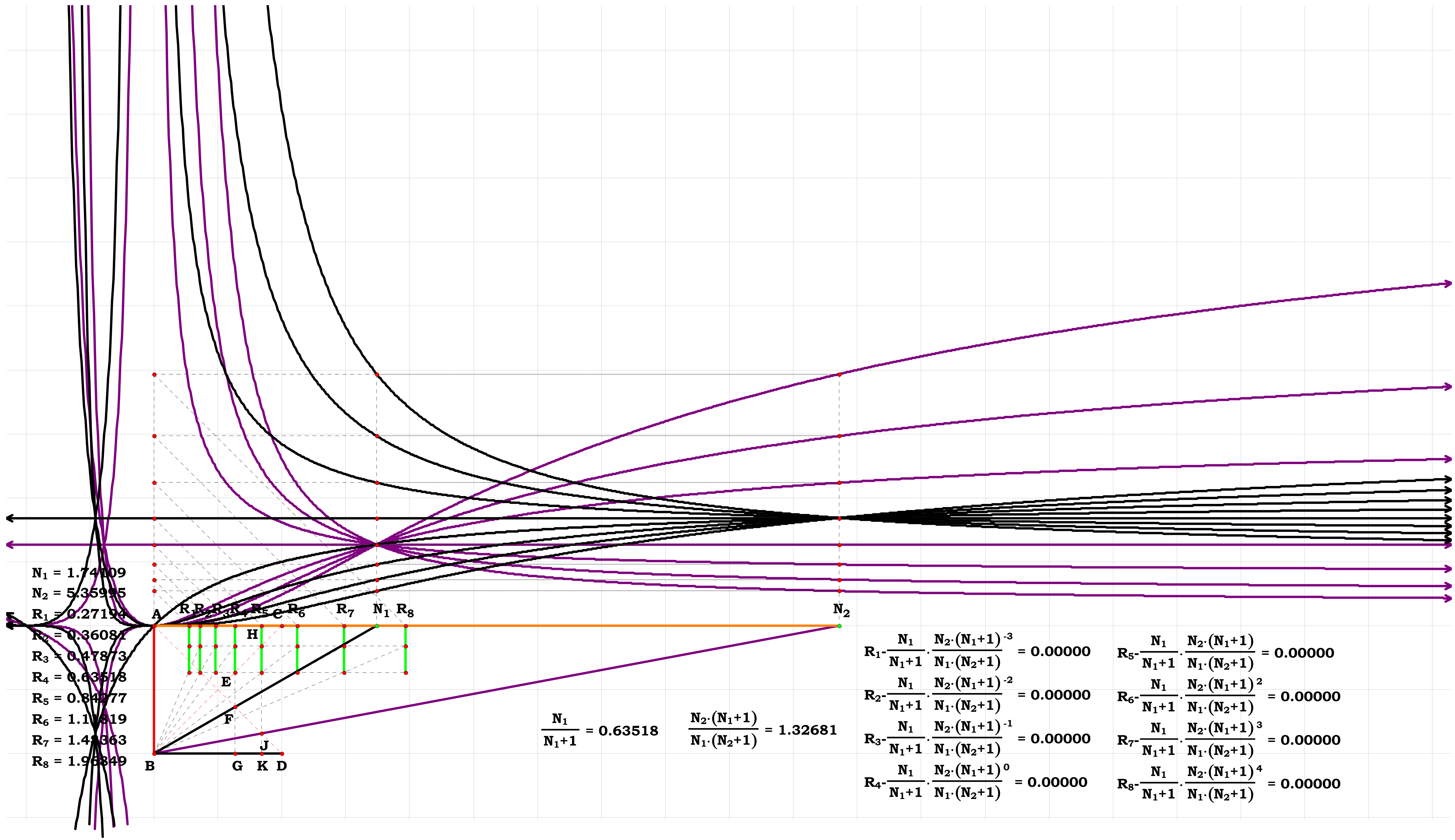
One might make an argument that every series should comprise two distinct parts, one, the starting point of the series, and the other the index, as in the following. I would imagine that such an arrangement would make series a whole lot easier to work with.

$$R_1 - \frac{N_1}{N_1 + 1} \cdot \left[\frac{N_2 \cdot (N_1 + 1)}{N_1 \cdot (N_2 + 1)}\right]^{-3} = 0 \qquad R_2 - \frac{N_1}{N_1 + 1} \cdot \left[\frac{N_2 \cdot (N_1 + 1)}{N_1 \cdot (N_2 + 1)}\right]^{-2} = 0 \qquad R_3 - \frac{N_1}{N_1 + 1} \cdot \left[\frac{N_2 \cdot (N_1 + 1)}{N_1 \cdot (N_2 + 1)}\right]^{-1} = 0$$

$$R_4 - \frac{N_1}{N_1 + 1} \cdot \left[\frac{N_2 \cdot (N_1 + 1)}{N_1 \cdot (N_2 + 1)}\right]^{0} = 0 \qquad R_5 - \frac{N_1}{N_1 + 1} \cdot \frac{N_2 \cdot (N_1 + 1)}{N_1 \cdot (N_2 + 1)} = 0 \qquad \frac{N_1}{N_1 + 1} \cdot \frac{N_2 \cdot (N_1 + 1)}{N_1 \cdot (N_2 + 1)} = 0.765226$$

$$R_6 - \frac{N_1}{N_1 + 1} \cdot \left[\frac{N_2 \cdot (N_1 + 1)}{N_1 \cdot (N_2 + 1)}\right]^{2} = 0 \qquad R_7 - \frac{N_1}{N_1 + 1} \cdot \left[\frac{N_2 \cdot (N_1 + 1)}{N_1 \cdot (N_2 + 1)}\right]^{3} = 0 \qquad R_8 - \frac{N_1}{N_1 + 1} \cdot \left[\frac{N_2 \cdot (N_1 + 1)}{N_1 \cdot (N_2 + 1)}\right]^{4} = 0$$

$R_1 = 0.416465$ $\qquad R_5 = 0.765226$
$R_2 = 0.484876$ $\qquad R_6 = 0.890928$
$R_3 = 0.564526$ $\qquad R_7 = 1.037279$
$R_4 = 0.65726$ $\qquad R_8 = 1.207671$



N_1 = 1.74109
N_2 = 5.35995
R_1 = 0.27194
R_2 = 0.36081
R_3 = 0.47873
R_4 = 0.63518
R_5 = 0.84277
R_6 = 1.11819
R_7 = 1.48363
R_8 = 1.96849
A
B
C
D
E
F
G
H
J
K
R_1 R_2 R_3 R_4 R_5 R_6 R_7 N_1 R_8
N_2
$\frac{N_1}{N_1+1} = 0.63518$
$\frac{N_2\cdot(N_1+1)}{N_1\cdot(N_2+1)} = 1.32681$
$R_1 - \frac{N_1}{N_1+1}\cdot\left(\frac{N_2\cdot(N_1+1)}{N_1\cdot(N_2+1)}\right)^{-3} = 0.00000$
$R_2 - \frac{N_1}{N_1+1}\cdot\left(\frac{N_2\cdot(N_1+1)}{N_1\cdot(N_2+1)}\right)^{-2} = 0.00000$
$R_3 - \frac{N_1}{N_1+1}\cdot\left(\frac{N_2\cdot(N_1+1)}{N_1\cdot(N_2+1)}\right)^{-1} = 0.00000$
$R_4 - \frac{N_1}{N_1+1}\cdot\left(\frac{N_2\cdot(N_1+1)}{N_1\cdot(N_2+1)}\right)^{0} = 0.00000$
$R_5 - \frac{N_1}{N_1+1}\cdot\left(\frac{N_2\cdot(N_1+1)}{N_1\cdot(N_2+1)}\right) = 0.00000$
$R_6 - \frac{N_1}{N_1+1}\cdot\left(\frac{N_2\cdot(N_1+1)}{N_1\cdot(N_2+1)}\right)^{2} = 0.00000$
$R_7 - \frac{N_1}{N_1+1}\cdot\left(\frac{N_2\cdot(N_1+1)}{N_1\cdot(N_2+1)}\right)^{3} = 0.00000$
$R_8 - \frac{N_1}{N_1+1}\cdot\left(\frac{N_2\cdot(N_1+1)}{N_1\cdot(N_2+1)}\right)^{4} = 0.00000$

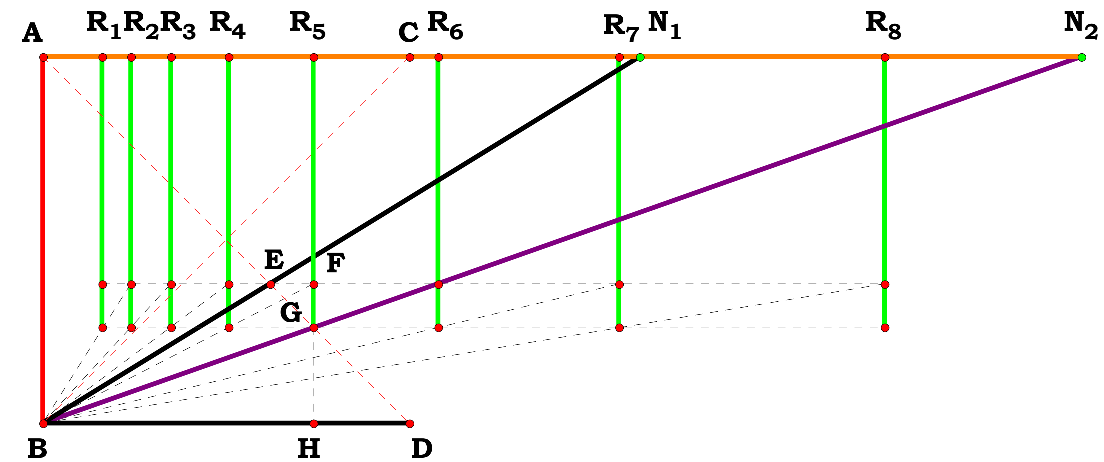
090912-4B

$AB := 1$

$N_1 := 1.62767$

$N_2 := 2.83274$

$N_1 = 1.62767$
$N_2 = 2.83274$
$R_1 = 0.16328$
$R_2 = 0.23817$
$R_3 = 0.34739$
$R_4 = 0.50671$
$R_5 = 0.73909$
$R_6 = 1.07805$
$R_7 = 1.57245$
$R_8 = 2.29359$



$$FH := \frac{1}{N_1+1} \qquad GH := \frac{1}{N_2+1} \qquad R_5 := 1 - GH$$

$$R_6 := \frac{R_5}{GH}\cdot FH \qquad R_7 := \frac{R_6}{GH}\cdot FH \qquad R_8 := \frac{R_7}{GH}\cdot FH$$

$$R_4 := \frac{R_5}{FH}\cdot GH \qquad R_3 := \frac{R_4}{FH}\cdot GH \qquad R_2 := \frac{R_3}{FH}\cdot GH \qquad R_1 := \frac{R_2}{FH}\cdot GH$$

$$R_5 - \frac{N_2}{N_2+1} = 0 \qquad \frac{FH}{GH} - \frac{N_2+1}{N_1+1} = 0$$

$$R_1 - \frac{N_2}{N_2+1}\cdot\left(\frac{N_2+1}{N_1+1}\right)^{-4} = 0 \qquad R_2 - \frac{N_2}{N_2+1}\cdot\left(\frac{N_2+1}{N_1+1}\right)^{-3} = 0 \qquad R_3 - \frac{N_2}{N_2+1}\cdot\left(\frac{N_2+1}{N_1+1}\right)^{-2} = \blacksquare \qquad R_4 - \frac{N_2}{N_2+1}\cdot\left(\frac{N_2+1}{N_1+1}\right)^{-1} = 0$$

$$R_5 - \frac{N_2}{N_2+1}\cdot\left(\frac{N_2+1}{N_1+1}\right)^{0} = 0 \qquad R_6 - \frac{N_2}{N_2+1}\cdot\left(\frac{N_2+1}{N_1+1}\right)^{1} = 0 \qquad R_7 - \frac{N_2}{N_2+1}\cdot\left(\frac{N_2+1}{N_1+1}\right)^{2} = 0 \qquad R_8 - \frac{N_2}{N_2+1}\cdot\left(\frac{N_2+1}{N_1+1}\right)^{3} = 0$$

$R_1 = 0.163284$

$R_2 = 0.238167$

$R_3 = 0.347392$

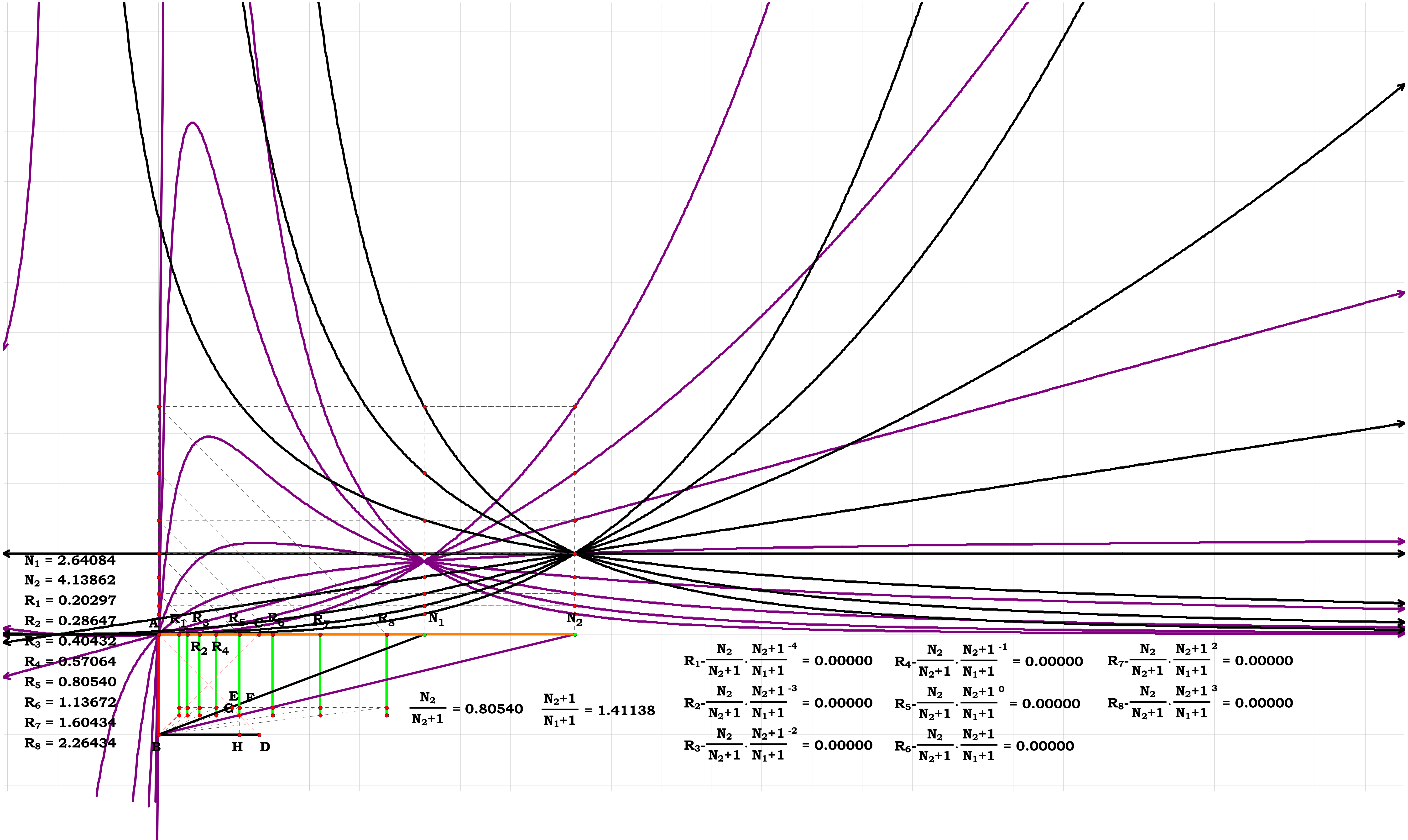
$R_4 = 0.506709$

$R_5 = 0.73909$

$R_6 = 1.078043$

$R_7 = 1.572441$

$R_8 = 2.293575$



N1 = 2.64084
N2 = 4.13862
R1 = 0.20297
R2 = 0.28647
R3 = 0.40432
R4 = 0.57064
R5 = 0.80540
R6 = 1.13672
R7 = 1.60434
R8 = 2.26434
A
B
C
D
E
F
G
H
R1
R2
R3
R4
R5
R6
R7
R8
N1
N2
N2/(N2+1) = 0.80540
(N2+1)/(N1+1) = 1.41138
R1-N2/(N2+1)·((N2+1)/(N1+1))^-4 = 0.00000
R2-N2/(N2+1)·((N2+1)/(N1+1))^-3 = 0.00000
R3-N2/(N2+1)·((N2+1)/(N1+1))^-2 = 0.00000
R4-N2/(N2+1)·((N2+1)/(N1+1))^-1 = 0.00000
R5-N2/(N2+1)·((N2+1)/(N1+1))^0 = 0.00000
R6-N2/(N2+1)·(N2+1)/(N1+1) = 0.00000
R7-N2/(N2+1)·((N2+1)/(N1+1))^2 = 0.00000
R8-N2/(N2+1)·((N2+1)/(N1+1))^3 = 0.00000

090912-5

$B = 1.31080$
$C = 1.71820$
$D = 2.25222$
$E = 2.95221$
$F = 3.86977$
$G = 5.07250$

$$\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)} = 1.31080 \qquad \left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^1 - B = 0.00000$$

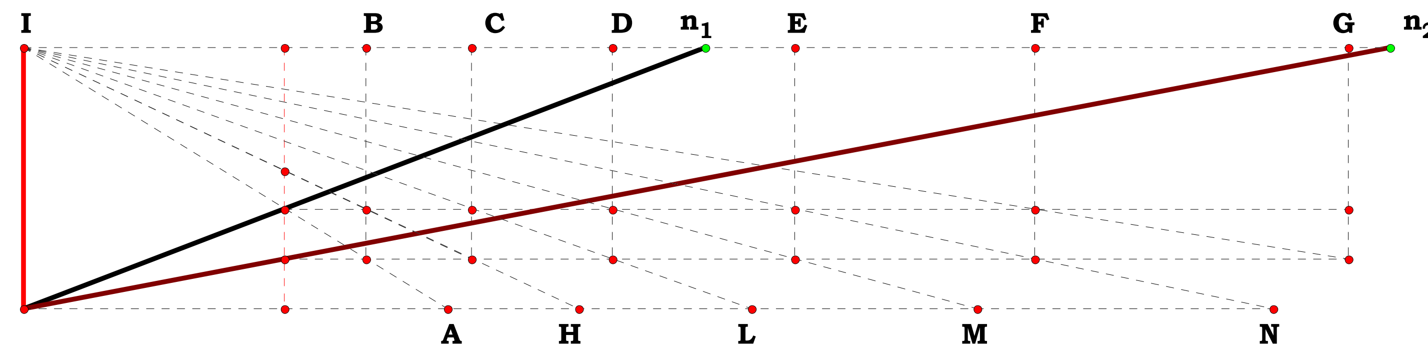
$$\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^2 = 1.71820 \qquad \left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^2 - C = 0.00000$$

$$\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^3 = 2.25222 \qquad \left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^3 - D = 0.00000$$

$$\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^4 = 2.95221 \qquad \left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^4 - E = 0.00000$$

$$\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^5 = 3.86977 \qquad \left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^5 - F = 0.00000$$

$$\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^6 = 5.07250 \qquad \left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^6 - G = 0.00000$$



$$\frac{N_1}{N_1-1} - A = 0.00000$$

$$\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2} = 2.12423$$

$N_1 = 2.61146$
$N_2 = 5.23175$

$A = 1.62056$
$H = 2.12423$
$L = 2.78444$
$M = 3.64985$
$N = 4.78423$

$$\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^{-1} = 1.62056 \qquad \left(\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^{-1}\right) - A = 0.00000$$

$$\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^{0} = 2.12423 \qquad \left(\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^{0}\right) - H = 0.00000$$

$$\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^{1} = 2.78444 \qquad \left(\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^{1}\right) - L = 0.00000$$

$$\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^{2} = 3.64985 \qquad \left(\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^{2}\right) - M = 0.00000$$

$$\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^{3} = 4.78423 \qquad \left(\frac{N_1^2\cdot(N_2-1)}{N_2\cdot(N_1-1)^2}\cdot\left(\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right)^{3}\right) - N = 0.00000$$

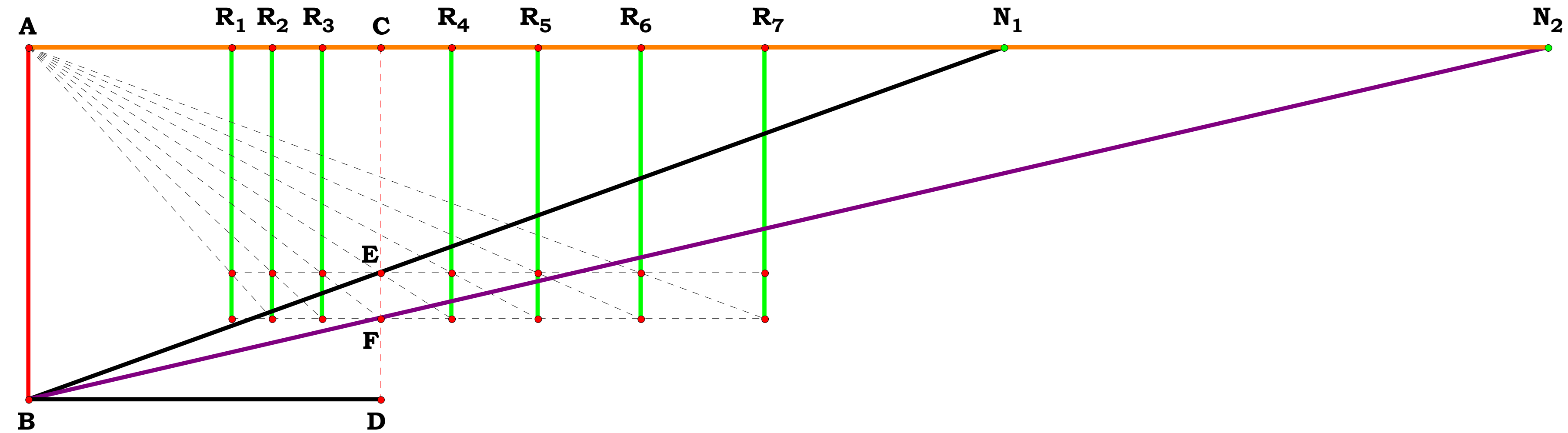
090912-5a

$AB := 1$

$N_1 := 2.76966$

$N_2 := 4.31164$

$N_1 = 2.76966$
$N_2 = 4.31164$
$R_1 = 0.57569$
$R_2 = 0.69203$
$R_3 = 0.83188$
$R_4 = 1.20209$
$R_5 = 1.44502$
$R_6 = 1.73705$
$R_7 = 2.08809$



$$DE := \frac{1}{N_1} \qquad DF := \frac{1}{N_2}$$

$$R_3 := \frac{1}{1-DF}\cdot(1-DE) \qquad R_4 := \frac{1}{1-DE}\cdot(1-DF)$$

$$R_2 := \frac{R_3}{1-DF}\cdot(1-DE) \qquad R_1 := \frac{R_2}{1-DF}\cdot(1-DE)$$

$$R_5 := \frac{R_4}{1-DE}\cdot(1-DF) \qquad R_6 := \frac{R_5}{1-DE}\cdot(1-DF) \qquad R_7 := \frac{R_6}{1-DE}\cdot(1-DF)$$

$R_1 = 0.575689$ $\quad$ $R_5 = 1.445022$

$R_2 = 0.692031$ $\quad$ $R_6 = 1.737048$

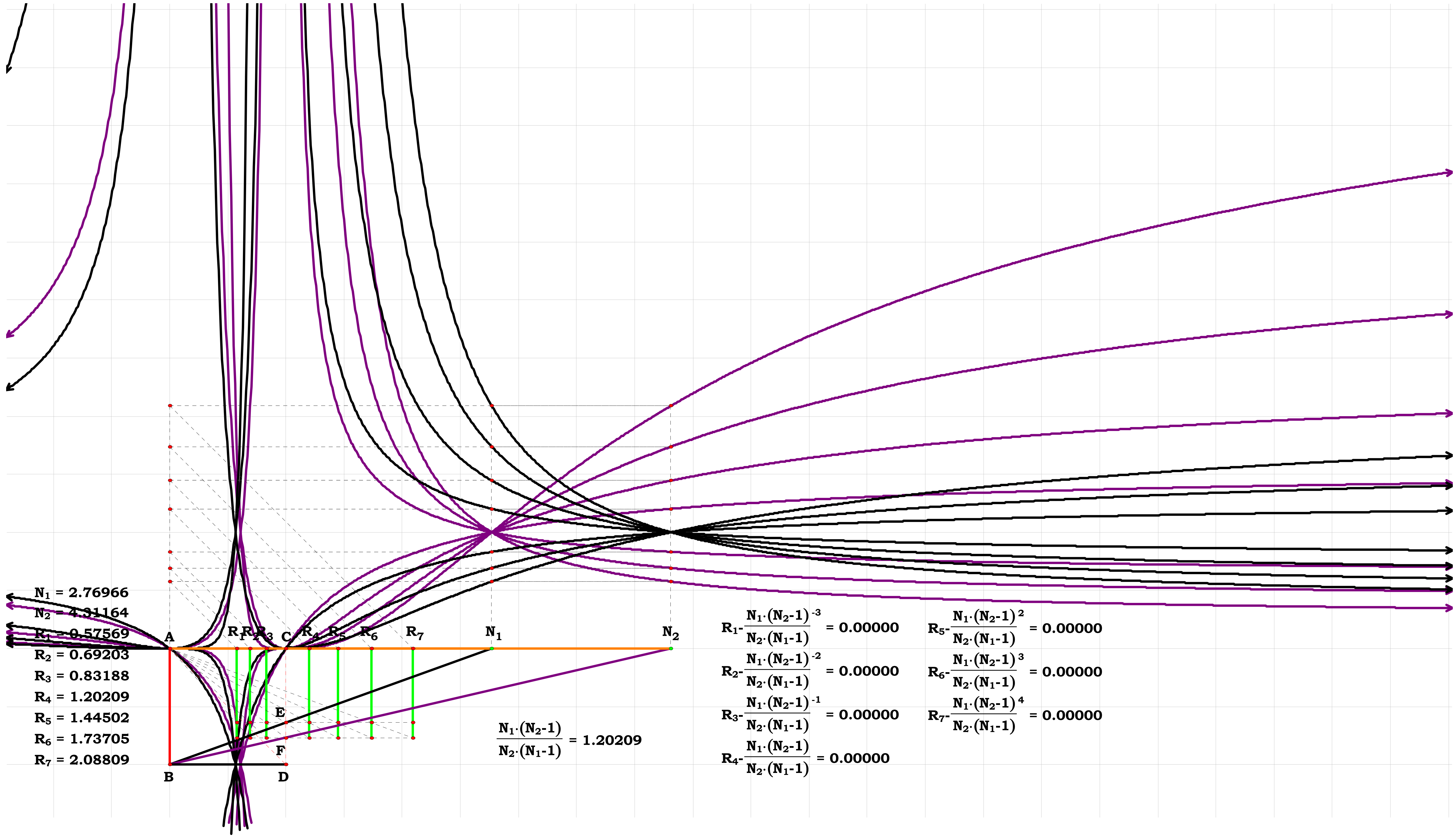
$R_3 = 0.831884$ $\quad$ $R_7 = 2.088089$

$R_4 = 1.202091$

$$R_4 - \frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)} = 0$$

$$R_1 - \left[\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right]^{-3} = 0 \qquad R_2 - \left[\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right]^{-2} = 0 \qquad R_3 - \left[\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right]^{-1} = 0 \qquad AB - \left[\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right]^{0} = 0$$

$$R_4 - \left[\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right]^{1} = 0 \qquad R_5 - \left[\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right]^{2} = 0 \qquad R_6 - \left[\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right]^{3} = 0 \qquad R_7 - \left[\frac{N_1\cdot(N_2-1)}{N_2\cdot(N_1-1)}\right]^{4} = 0$$

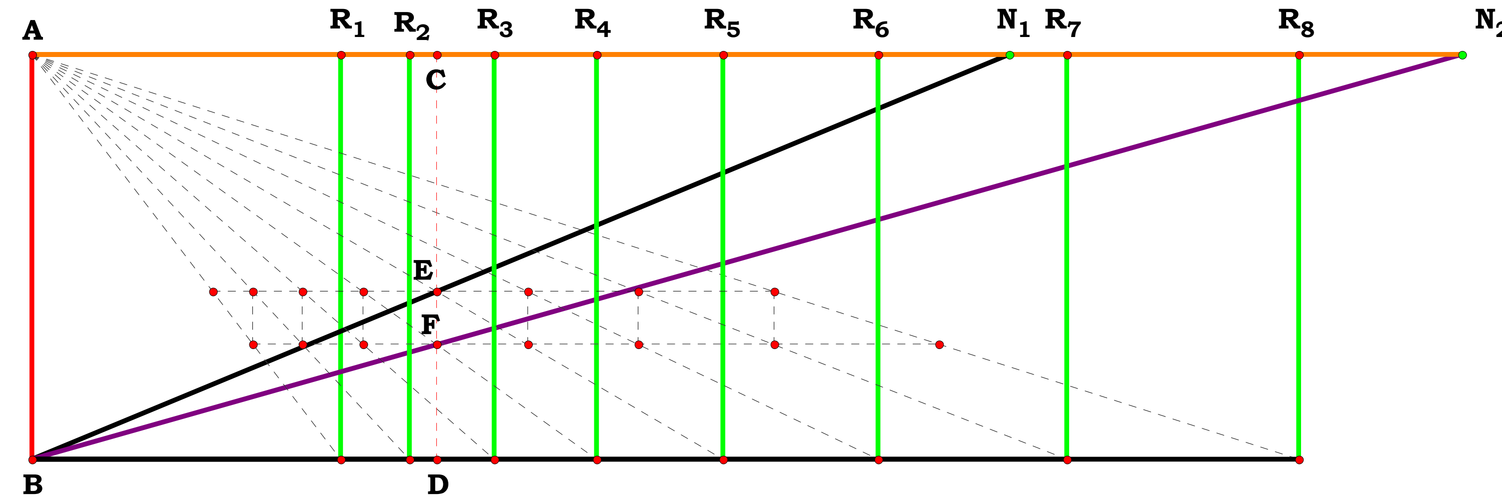


N1 = 2.76966
N2 = 4.31164
R1 = 0.57569
R2 = 0.69203
R3 = 0.83188
R4 = 1.20209
R5 = 1.44502
R6 = 1.73705
R7 = 2.08809
A
B
C
D
E
F
R1 R2 R3 R4 R5 R6 R7 N1 N2
N1·(N2-1) / N2·(N1-1) = 1.20209
R1-N1·(N2-1)^-3 / N2·(N1-1) = 0.00000
R2-N1·(N2-1)^-2 / N2·(N1-1) = 0.00000
R3-N1·(N2-1)^-1 / N2·(N1-1) = 0.00000
R4-N1·(N2-1) / N2·(N1-1) = 0.00000
R5-N1·(N2-1)^2 / N2·(N1-1) = 0.00000
R6-N1·(N2-1)^3 / N2·(N1-1) = 0.00000
R7-N1·(N2-1)^4 / N2·(N1-1) = 0.00000

090912-5a

$$AB := 1$$
$$N_1 := 2.41427$$
$$N_2 := 3.52979$$

$N_1 = 2.41427$
$N_2 = 3.52979$
$R_1 = 0.76190$
$R_2 = 0.93215$
$R_3 = 1.14045$
$R_4 = 1.39529$
$R_5 = 1.70708$
$R_6 = 2.08854$
$R_7 = 2.55523$
$R_8 = 3.12622$



$$DE := \frac{1}{N_1} \qquad DF := \frac{1}{N_2} \qquad R_4 := \frac{1}{1 - DF} \qquad R_5 := \frac{1}{1 - DE}$$

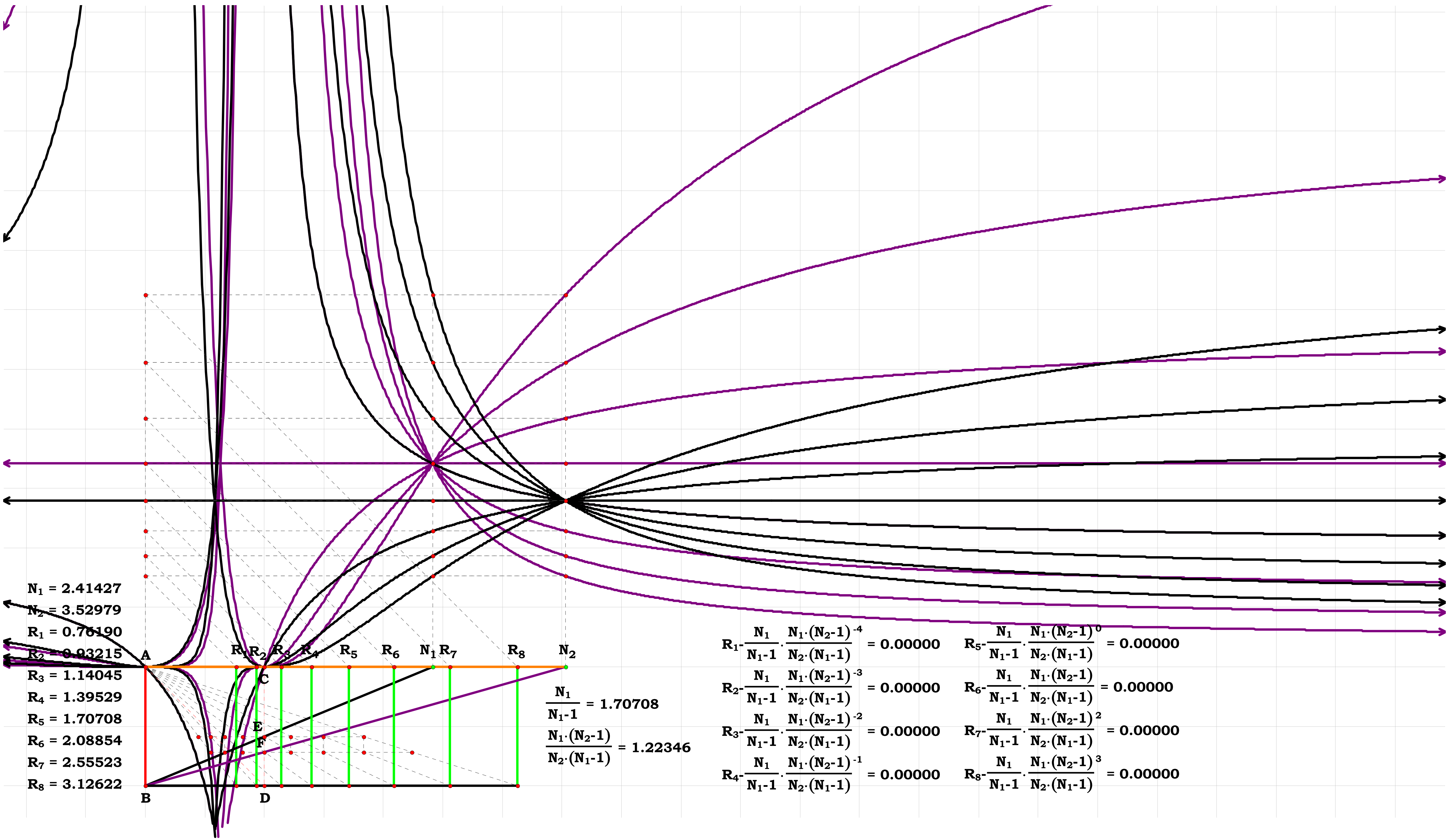
$$R_3 := \frac{R_4 \cdot (1 - DE)}{1 - DF} \qquad R_2 := \frac{R_3 \cdot (1 - DE)}{1 - DF} \qquad R_1 := \frac{R_2 \cdot (1 - DE)}{1 - DF}$$

$$R_6 := \frac{R_5 \cdot (1 - DF)}{1 - DE} \qquad R_7 := \frac{R_6 \cdot (1 - DF)}{1 - DE} \qquad R_8 := \frac{R_7 \cdot (1 - DF)}{1 - DE}$$

$$\frac{1 - DF}{1 - DE} - \frac{N_1 \cdot \left(N_2 - 1\right)}{N_2 \cdot \left(N_1 - 1\right)} = 0$$

$$R_1 - \frac{N_1}{N_1 - 1} \cdot \left[\frac{N_1 \cdot \left(N_2 - 1\right)}{N_2 \cdot \left(N_1 - 1\right)}\right]^{-4} = 0 \qquad R_2 - \frac{N_1}{N_1 - 1} \cdot \left[\frac{N_1 \cdot \left(N_2 - 1\right)}{N_2 \cdot \left(N_1 - 1\right)}\right]^{-3} = 0 \qquad R_3 - \frac{N_1}{N_1 - 1} \cdot \left[\frac{N_1 \cdot \left(N_2 - 1\right)}{N_2 \cdot \left(N_1 - 1\right)}\right]^{-2} = 0 \qquad R_4 - \frac{N_1}{N_1 - 1} \cdot \left[\frac{N_1 \cdot \left(N_2 - 1\right)}{N_2 \cdot \left(N_1 - 1\right)}\right]^{-1} = 0$$

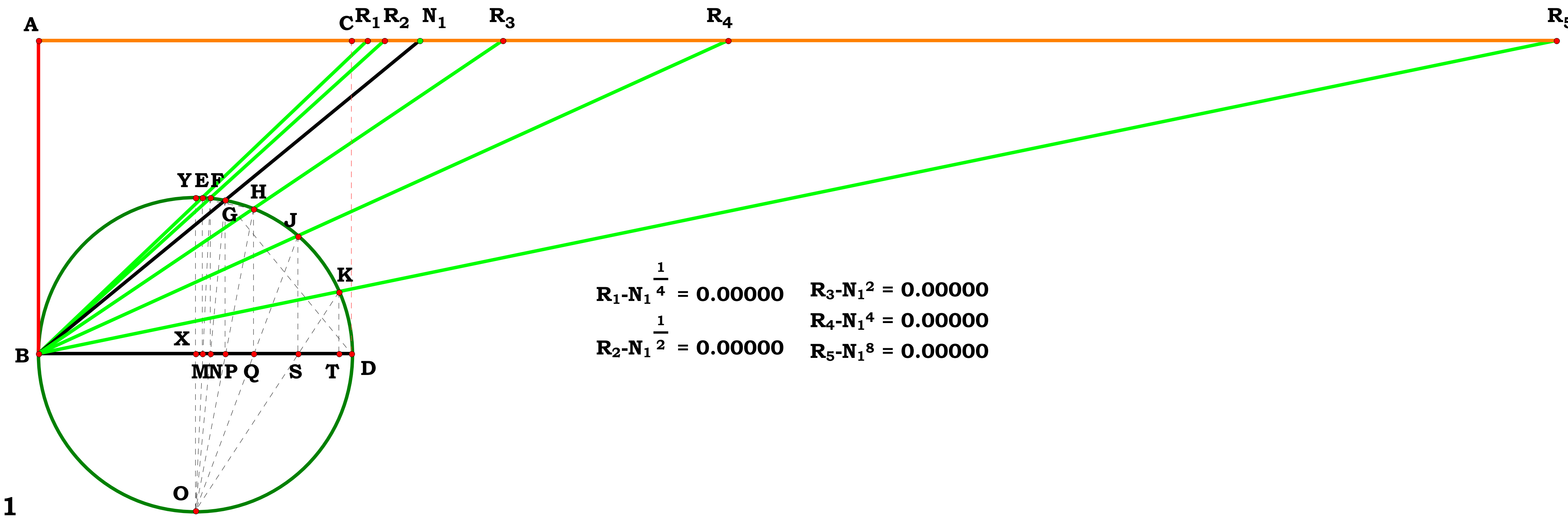
$$R_5 - \frac{N_1}{N_1 - 1} \cdot \left[\frac{N_1 \cdot \left(N_2 - 1\right)}{N_2 \cdot \left(N_1 - 1\right)}\right]^{0} = 0 \qquad R_6 - \frac{N_1}{N_1 - 1} \cdot \left[\frac{N_1 \cdot \left(N_2 - 1\right)}{N_2 \cdot \left(N_1 - 1\right)}\right]^{1} = 0 \qquad R_7 - \frac{N_1}{N_1 - 1} \cdot \left[\frac{N_1 \cdot \left(N_2 - 1\right)}{N_2 \cdot \left(N_1 - 1\right)}\right]^{2} = 0 \qquad R_8 - \frac{N_1}{N_1 - 1} \cdot \left[\frac{N_1 \cdot \left(N_2 - 1\right)}{N_2 \cdot \left(N_1 - 1\right)}\right]^{3} = 0$$



N1 = 2.41427
N2 = 3.52979
R1 = 0.76190
R2 = 0.93215
R3 = 1.14045
R4 = 1.39529
R5 = 1.70708
R6 = 2.08854
R7 = 2.55523
R8 = 3.12622
A
B
C
D
E
F
R1 R2 R3 R4 R5 R6 N1 R7 R8 N2
N1/(N1-1) = 1.70708
N1·(N2-1)/(N2·(N1-1)) = 1.22346
R1 - N1/(N1-1) · (N1·(N2-1)/(N2·(N1-1)))^-4 = 0.00000
R2 - N1/(N1-1) · (N1·(N2-1)/(N2·(N1-1)))^-3 = 0.00000
R3 - N1/(N1-1) · (N1·(N2-1)/(N2·(N1-1)))^-2 = 0.00000
R4 - N1/(N1-1) · (N1·(N2-1)/(N2·(N1-1)))^-1 = 0.00000
R5 - N1/(N1-1) · (N1·(N2-1)/(N2·(N1-1)))^0 = 0.00000
R6 - N1/(N1-1) · N1·(N2-1)/(N2·(N1-1)) = 0.00000
R7 - N1/(N1-1) · (N1·(N2-1)/(N2·(N1-1)))^2 = 0.00000
R8 - N1/(N1-1) · (N1·(N2-1)/(N2·(N1-1)))^3 = 0.00000

090912-6

$N_1 = 1.21811$
$R_1 = 1.05056$
$R_2 = 1.10368$
$R_3 = 1.48380$
$R_4 = 2.20166$
$R_5 = 4.84731$



$R_1 - N_1^{\frac{1}{4}} = 0.00000$ $\quad R_3 - N_1^2 = 0.00000$

$R_2 - N_1^{\frac{1}{2}} = 0.00000$ $\quad R_4 - N_1^4 = 0.00000$

$R_5 - N_1^8 = 0.00000$

One of the original methods I learned of doing exponential progression was by using what I call the unit circle. In this plate, I simply add the two figures together. I will do the exponential divisions in the unit circle.

One might consider, how the figures add together effortlessly when they are conceived of correctly. The unit circle, and the unit square, and the unit line, all work together using the same language, each depend simply upon the recursion of the unit, as does all of the language.

$$AB := 1$$

$$N_1 := 1.21811$$

$$BN_1 := \sqrt{AB^2 + N_1^2} \qquad BG := \frac{N_1}{BN_1} \qquad BP := N_1 \cdot \frac{BG}{BN_1} \qquad OX := \frac{AB}{2}$$

$$MP := BP - OX \qquad OP := \sqrt{OX^2 + MP^2} \qquad OH := \frac{OX \cdot AB}{OP} \qquad PH := OH - OP$$

$$PQ := \frac{MP \cdot PH}{OP} \qquad BQ := OX + MP + PQ \qquad HQ := \sqrt{BQ \cdot (AB - BQ)}$$

$$R_3 := \frac{BQ}{HQ} \qquad R_3 = 1.483792$$

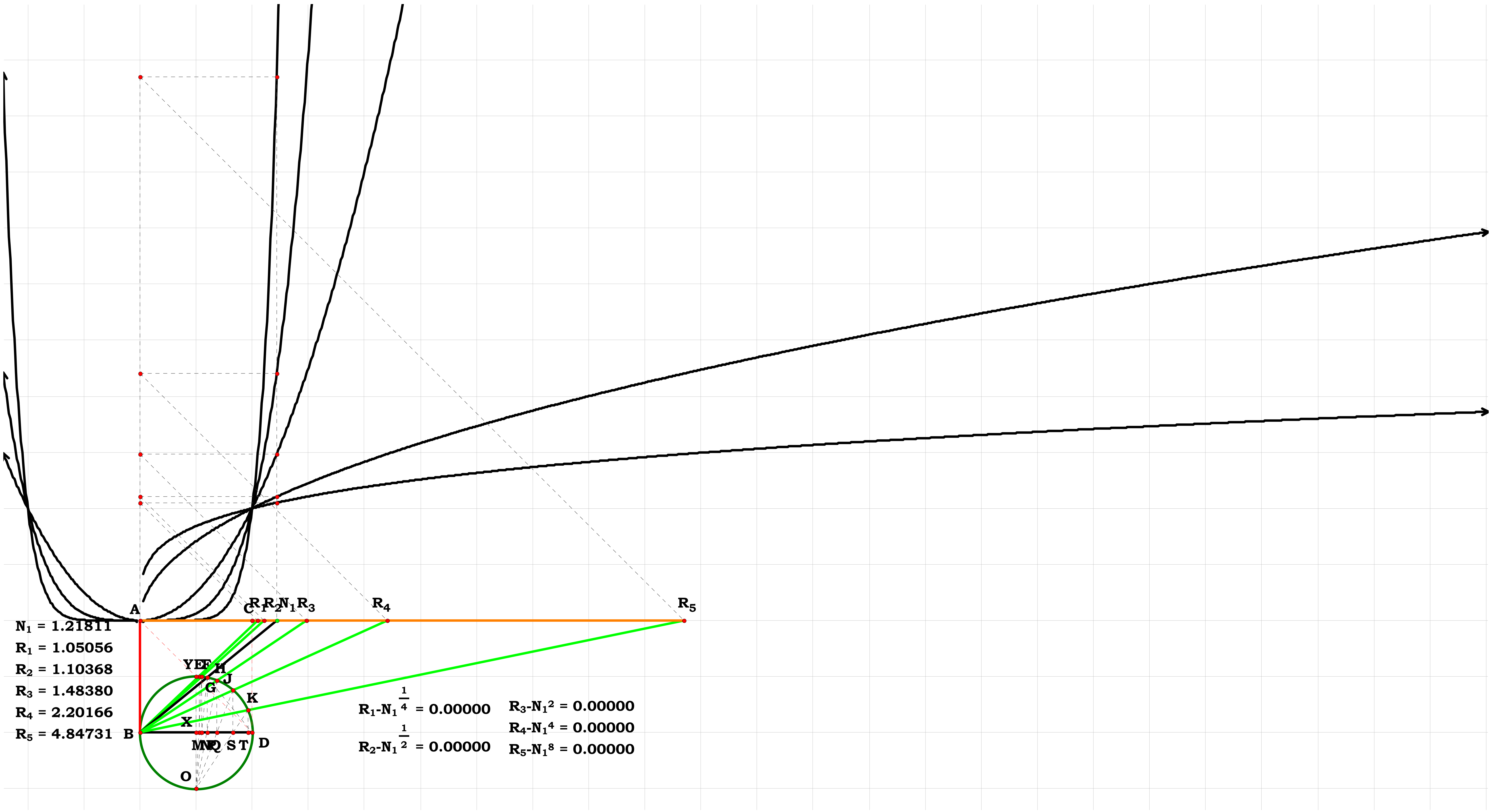
Now, Mathcad will come up with the following and simply refuse to reduce it.

$$R_3 - \frac{N_1^4}{\sqrt{\frac{N_1^4}{\left(N_1^4 + 1\right)^2} \cdot \left(N_1^4 + 1\right)}} = 0$$

Being a dumb program, only doing what it is told, we do not have to worry about hurting its feelings by finishing the job. One might find that in many math programs, one still has to give them a helping hand.

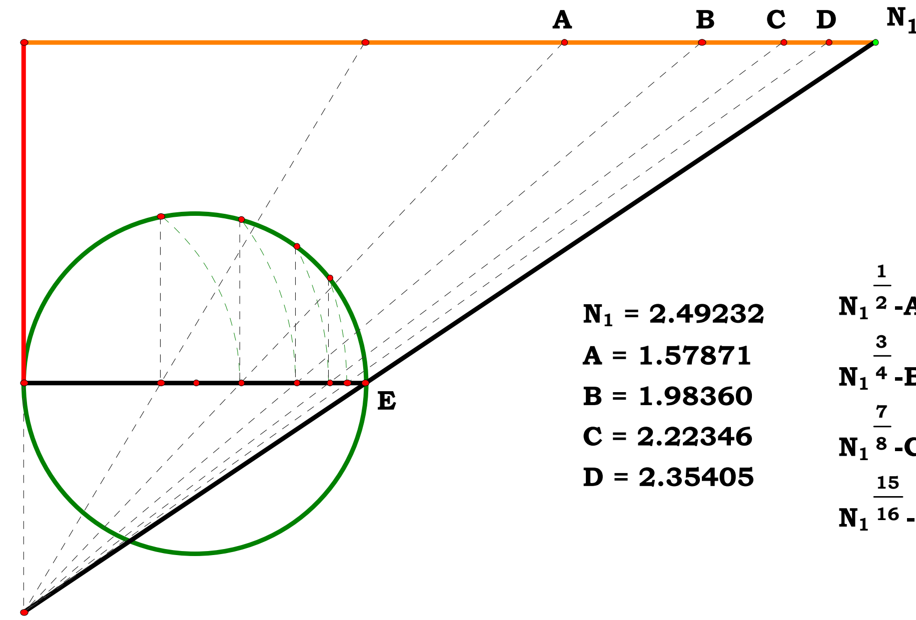
Simply repeat the process for every value one wishes to find, or until one can take a hint.

$$R_3 - N_1^2 = 0$$


A
C
R_1
R_2
N_1
R_3
R_4
R_5
$N_1 = 1.21811$
$R_1 = 1.05056$
$R_2 = 1.10368$
$R_3 = 1.48380$
$R_4 = 2.20166$
$R_5 = 4.84731$
Y E F H
G J
K
X
B
M N P Q S T
D
O
$R_1\text{-}N_1^{\frac{1}{4}} = 0.00000$
$R_2\text{-}N_1^{\frac{1}{2}} = 0.00000$
$R_3\text{-}N_1^2 = 0.00000$
$R_4\text{-}N_1^4 = 0.00000$
$R_5\text{-}N_1^8 = 0.00000$

090912-9

One might add this method for finding exponential series to their bag of tricks. I am not going to demonstrate the mathematics. One might refer to The Delian Quest.



$N_1 = 2.49232$

$A = 1.57871$

$B = 1.98360$

$C = 2.22346$

$D = 2.35405$

$N_1^{\frac{1}{2}} - A = 0.00000$

$N_1^{\frac{3}{4}} - B = 0.00000$

$N_1^{\frac{7}{8}} - C = 0.00000$

$N_1^{\frac{15}{16}} - D = 0.00000$

$N_1 = 2.49232$

$R_1 = 1.05874$

$R_2 = 1.12092$

$R_3 = 1.18676$

$R_4 = 1.25647$

$R_5 = 1.33027$

$R_6 = 1.40840$

$R_7 = 1.49113$

$R_8 = 1.57871$

$R_9 = 1.67144$

$R_{10} = 1.76961$

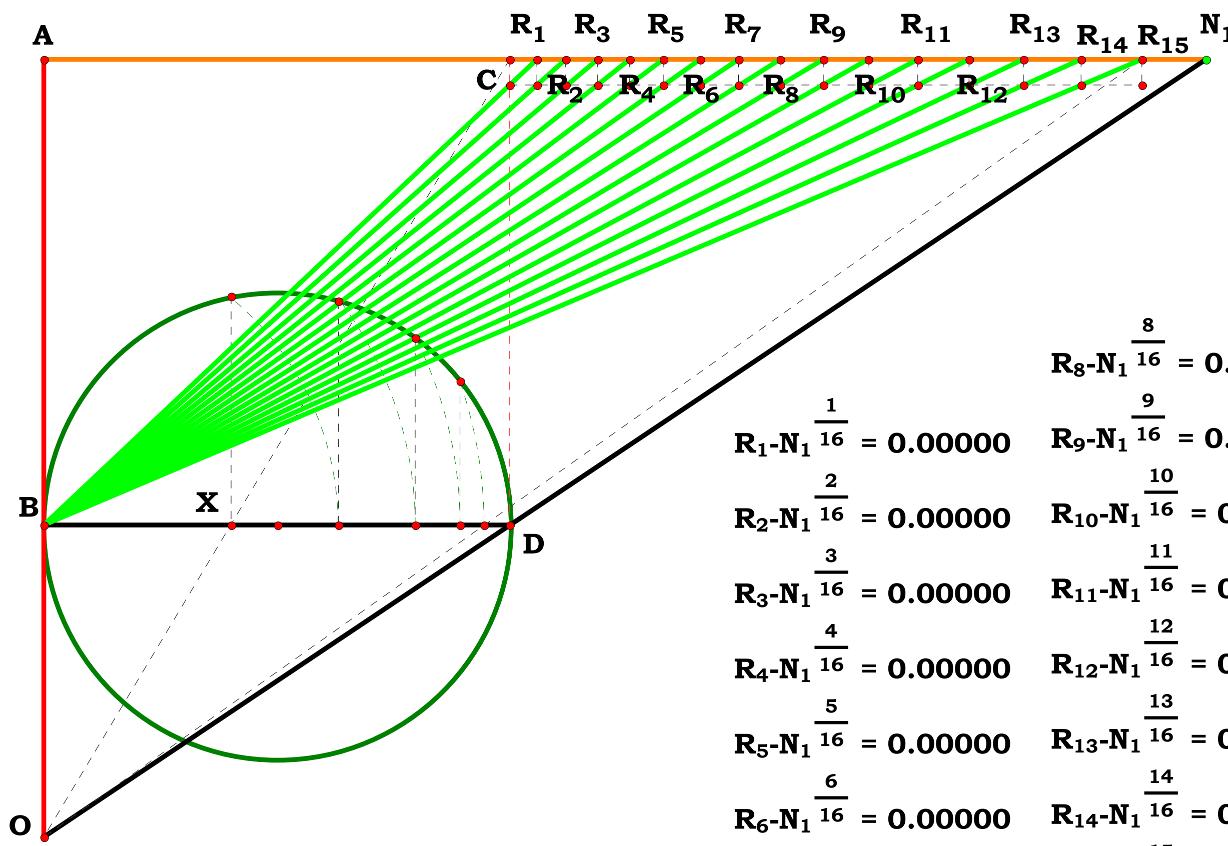
$R_{11} = 1.87355$

$R_{12} = 1.98360$

$R_{13} = 2.10010$

$R_{14} = 2.22346$

$R_{15} = 2.35405$



$R_8 - N_1^{\frac{8}{16}} = 0.00000$

$R_1 - N_1^{\frac{1}{16}} = 0.00000$

$R_9 - N_1^{\frac{9}{16}} = 0.00000$

$R_2 - N_1^{\frac{2}{16}} = 0.00000$

$R_{10} - N_1^{\frac{10}{16}} = 0.00000$

$R_3 - N_1^{\frac{3}{16}} = 0.00000$

$R_{11} - N_1^{\frac{11}{16}} = 0.00000$

$R_4 - N_1^{\frac{4}{16}} = 0.00000$

$R_{12} - N_1^{\frac{12}{16}} = 0.00000$

$R_5 - N_1^{\frac{5}{16}} = 0.00000$

$R_{13} - N_1^{\frac{13}{16}} = 0.00000$

$R_6 - N_1^{\frac{6}{16}} = 0.00000$

$R_{14} - N_1^{\frac{14}{16}} = 0.00000$

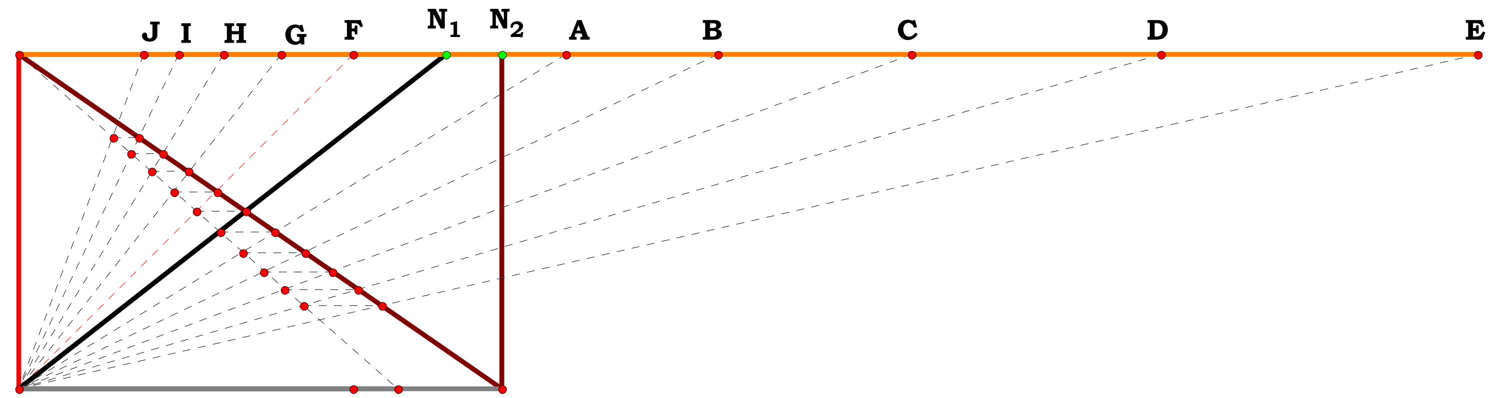
$R_7 - N_1^{\frac{7}{16}} = 0.00000$

$R_{15} - N_1^{\frac{15}{16}} = 0.00000$

091712

About the only thing interesting about this plate is that the second variable will not be found in the equation. No matter how large or how small one makes it, it will remain invisible to the logic except for one point, it has to be there. In short, its value is of no concern, its form, however, is required. Therefore, there are equations, which, a value is not seen, nor does one find its name, however, without being able to conceptually abstract it, one cannot solve for what they do have. The figure gives one something to think about in regard to conceptual ability. To solve a problem when one is dealing with a form of behavior one has to infer. I exampled a figure with this fact in the Delian Quest. The structure had to be there, but it neither added to, nor subtracted from the equation, they are binary operations.

Or, one can say, that in doing the math, the unit, or one always has to be kept in mind.

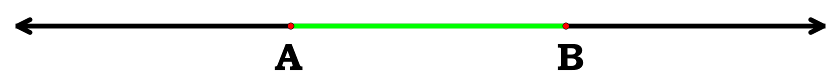


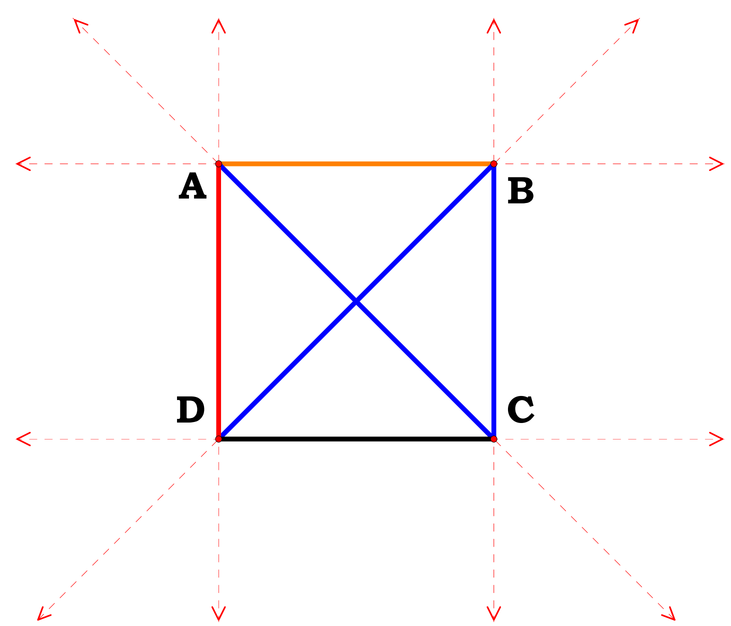
	A = 1.63353	F = 1.00000	N_1^2-A = 0.00000	N_1^0-F = 0.00000
N_1 = 1.27809	B = 2.08780	G = 0.78241	N_1^3-B = 0.00000	N_1^{-1}-G = 0.00000
N_2 = 1.44523	C = 2.66841	H = 0.61217	N_1^4-C = 0.00000	N_1^{-2}-H = 0.00000
	D = 3.41048	I = 0.47897	N_1^5-D = 0.00000	N_1^{-3}-I = 0.00000
	E = 4.35891	J = 0.37476	N_1^6-E = 0.00000	N_1^{-4}-J = 0.00000

Tale of Tails

Wednesday, November 4, 2020

The straightedge allows us to construct a single relative difference on paper, or other recording media. This is called a line also. A line and a single relative difference mean the same thing. By the definition of a thing, the line is not a thing; it is just one of the two parts of a thing. In order to make some one thing from it, we have to add limits to it. Adding the correlatives A and B, we make a thing called AB, but now we can call the line AB and also the segment AB.

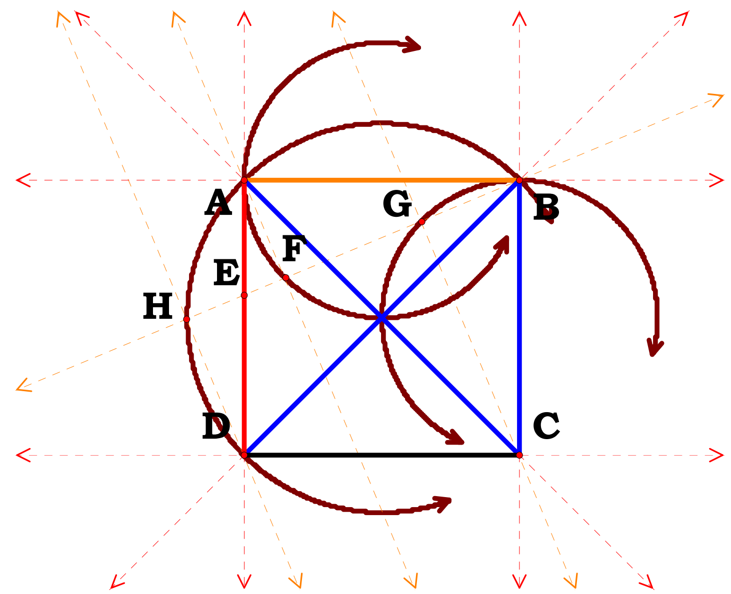




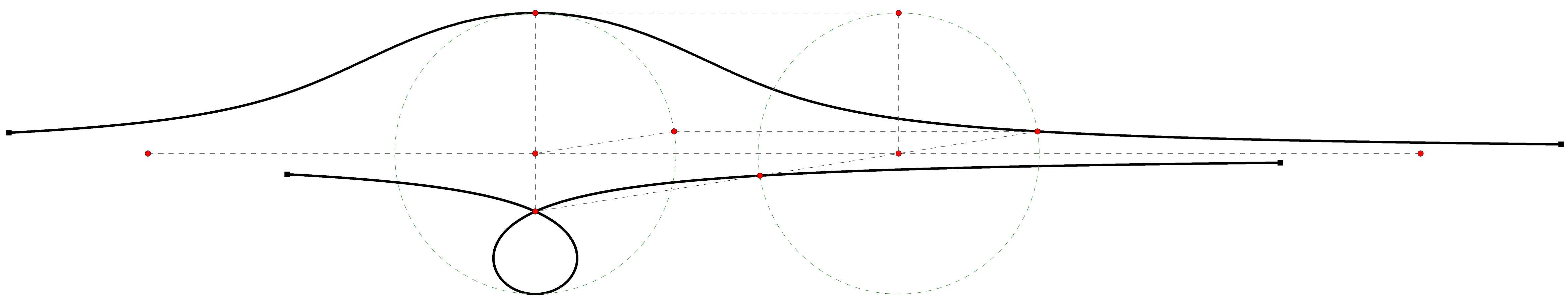
The term collinear means constructed from the same relative difference. I can also call the line AB the operational tail of segment AB, for every operation with the segment AB will involve the line AB. In Geometry, the segment AB is called a simple binary thing and we can elevate it to the status of a unit by which every other thing we construct will be in terms of a ratio to it.

Using AB as our unit, we can then construct six operational tails AB, AD, AC, BC, BD, and CD which we can use to start demonstrating our mathematical operations with.

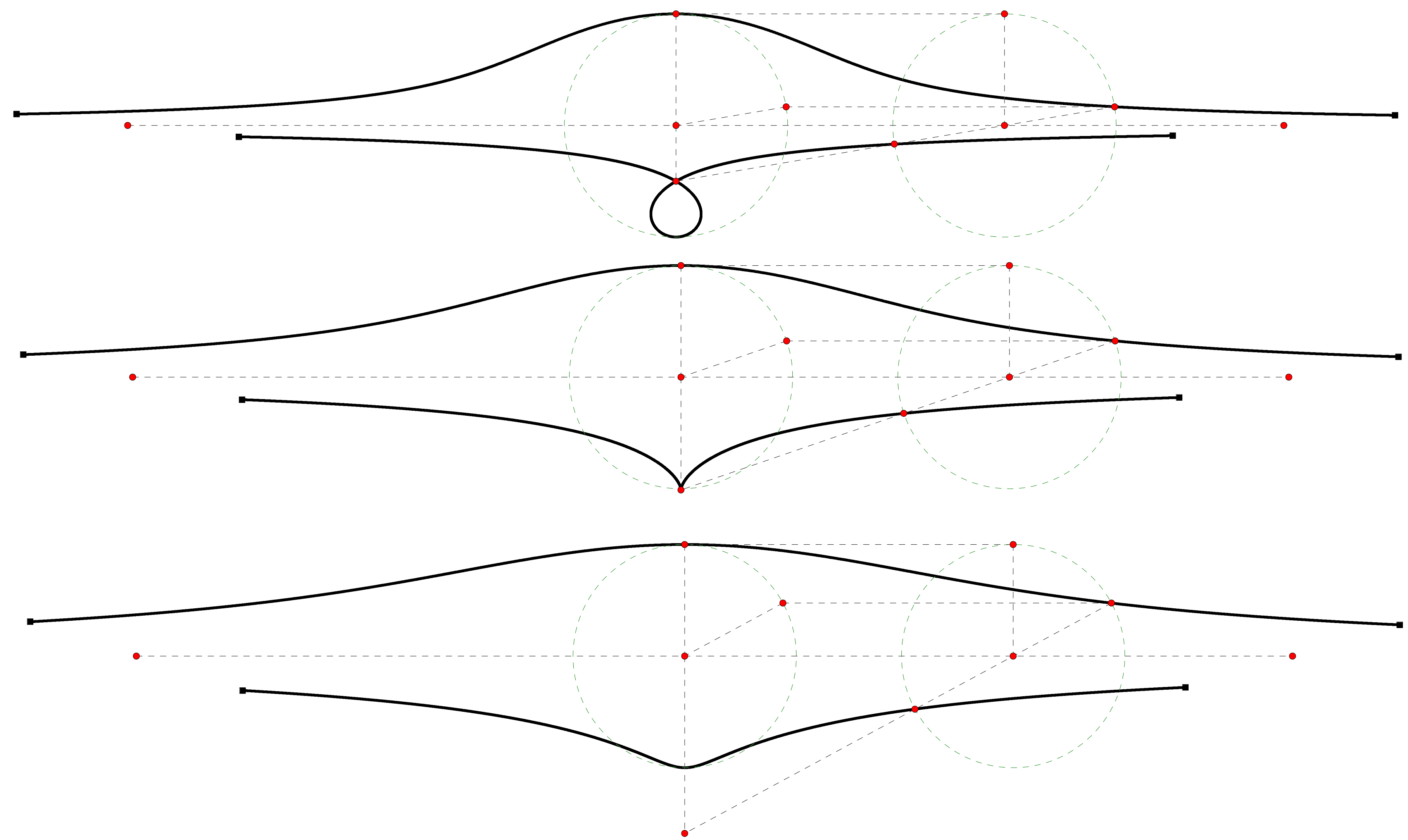
If we use the operational tail AD and any point E on it, we can construct BE along with DH, AF, CG, etc., which are on a locus called a circle. This is the difference between a straightedge and a compass. A straightedge affords us one relative difference, while a compass affords us one locus. Thus a straightedge will give us one relative difference between two points, while a compass a correlative of every possible relative difference from a given point. With the straightedge we then draw a line, but with a compass we draw a locus. In a manner of speaking then, one can say that the straightedge gives us a unit of discourse, while the compass shows us the universe of discourse with a given unit. The straightedge, then, affords us the verb, while the compass a noun. If we make the mistake of many a past geometer, confusing the one with the other, we will be speaking gibberish. These two tools, then, afford us the unit by which to construct the whole of geometry by complete induction and deduction.

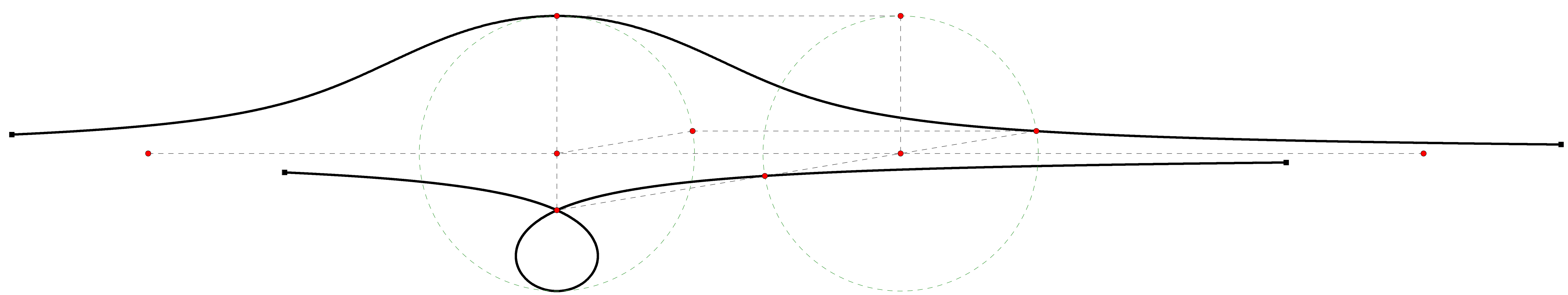


The Conchoid



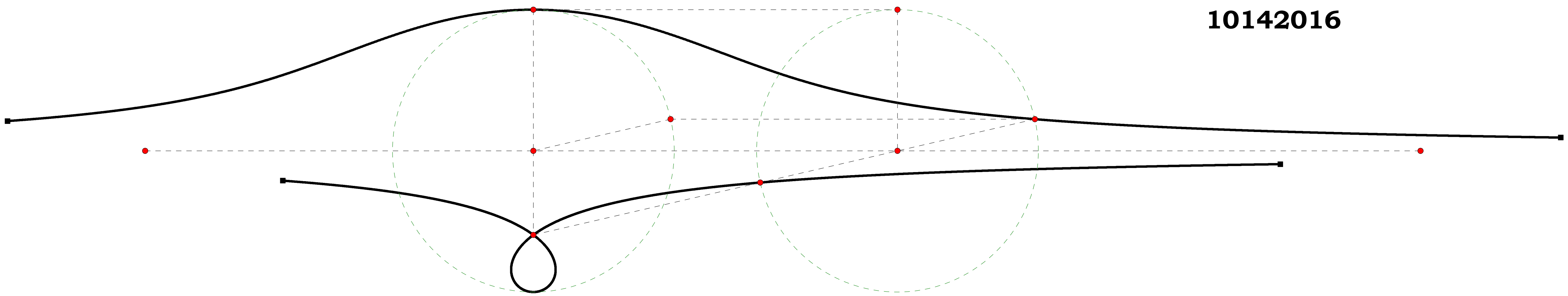
Heath mentions this in his Eucclid's *Elements.* His graphic and explaination was not very good, so I decided to draw what he was describing and then maybe I will at some time tackle writing up the equations and doing some research on how it was used. See what I can come up with. I do not understand why it is thought that it produces different curves when every one of them all have the same equation.





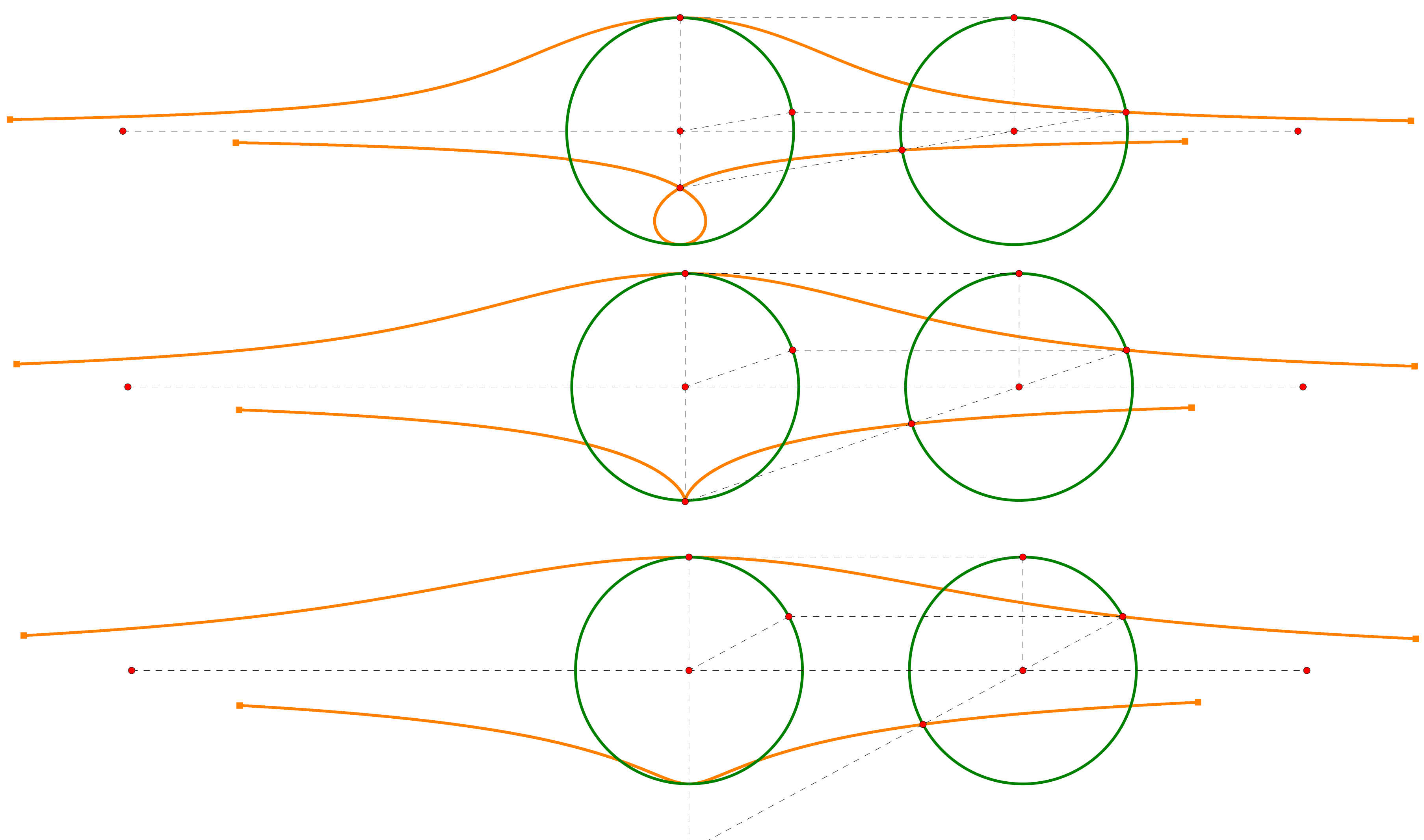
The Conchoid

10142016



I found some of my old notes on Heath. Heath mentions this in his Euclid's *Elements*. His graphic and explaination was not very good, so I decided to draw what he was describing and then maybe I will, at some time, tackle writing up the equations and doing some research on how it was used. See what I can come up with. I do not understand why it is thought that it produces different curves when every one of them all have the same equation. If one wants to think they can classify all the curves by how they look, what will they do with BAM? Way too much appearance over reality. It makes it easier to understand when one can gather it all in with a glance.

Seems to me, if one can draw it using the language, one can write the equations. If one can write the equations, one can write the equations to what it was used for.



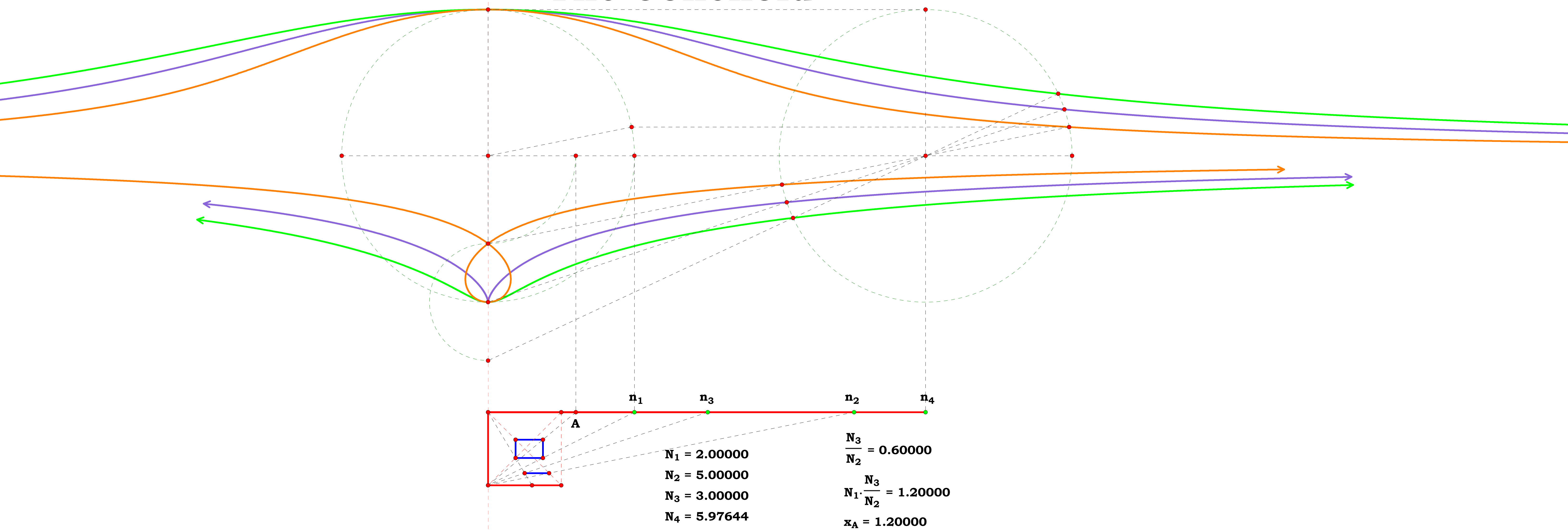
As the figure uses the unit for construction, it is a valid geometric construction just like the circle. When drawn correctly, it is easy to find any point one desires.

If one can actually solve all the problems one wants with this, as they say, then I guess that is that, all one has to do is fill in the blanks.

So, this should be a nice little diversion if I get the opportunity to write it up.

It is not any more difficult to write up than the conic sections.

The Conchoid



The Oxford dic. has a better def. then what I seen online. Not exactly sure that *a curve* cuts it though; it is actually two distinct curves.

noun Mathematics *a plane quartic curve* consisting of two separate branches either side of and asymptotic to a central straight line (the asymptote), such that if a line is drawn from a fixed point (the pole) to intersect both branches, the part of the line falling between the two branches is of constant length and is exactly bisected by the asymptote.